Lesson 32 - Why We Should Not Eat Meat

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1. The Principle Hygienic Concern Is Optimal Health

In the study of Natural Hygiene, we are concerned primarily with lifestyle and eating patterns which will result in optimal health and longevity. Much has been written about the "Vegetarian Alternative," and the many reasons for avoiding the consumption of meat—all flesh foods: beef, veal, lamb, poultry and fish. Such reasons run the gamut from compassion and humanitarianism, ethics and morality, religion, aesthetics, ecology, conservation of resources (land, water, energy, food), economics—and better health.

In this lesson, we will be concerned with the anatomical, physiological, pathological and nutritional reasons for eliminating flesh foods from the human diet, and why optimal health is not possible on a

meat-based diet. We will discuss the health problems that can be caused by the consumption of flesh foods, and the vibrant health that can be attained (or regained) by adherence to Hygienic principles of living and eating—without flesh foods.

2. The Best Fuel For The Human Body

The human body can be maintained on a conglomerate assortment of foods, or our race would have long since vanished. A gasoline engine can operate on kerosene, but it will clog up, parts will wear out sooner, and its serviceable life will be greatly reduced.

The human body will also work best and last longest when fed the fuel intended for man and on which he will best survive: raw fruits, raw vegetables, raw unsalted nuts and seeds, and sprouted legumes and grains. The biological equipment of humans is such that the body is much more capable of obtaining complete and optimal nutrition, without threat or stress, from plant foods.

2.1 Plants Are The Source Of Food Elements

It is a fact that all nutritive material is formed in the plant kingdom—animals have the power to appropriate but never to form or create food elements. Plants can synthesize amino acids from air, earth and water, but animals—including humans—are dependent on plant protein, either directly by eating the plant, or indirectly by eating an animal which has eaten the plant.

A plant-eater utilizes one-tenth of the energy stored in his food—a meat-eater utilizes from meat only one-hundredth of the energy that was originally stored in the primary source, the plants. (Robert H. Dunn, M.D., M.P.H., Director of Preventive Medicine, Washington Adventist Hospital, Introduction to *Meat on the Menu: Who Needs It?* by Raymond H. Woolsey, published 1974.)

Out of the amino acids found in plant and/or animal tissues used as food, the living organism synthesizes the numerous proteins needed by the cells and tissues of its own body. There are no amino acids in flesh that the animal did not derive from the plant, and that man cannot also derive from the plant.

Those who eat animals get only the nutritional elements which the animals have obtained from vegetation, and are of necessity deteriorated with the impurities. and putrescence invariably present in their blood and tissues.

When you eat foods from the plant kingdom, you receive the amino acids in ideal combinations with other substances which are essential to the full utilization of protein: carbohydrates, minerals, vitamins, enzymes, hormones—in addition to chlorophyll, which only plants can supply.

The best sources of concentrated protein for many are raw, unsalted nuts and seeds. In the raw state, all enzymes are intact and the amino acids are wholesomely alive and unchanged. They contain all the vitamins, minerals, trace elements, carbohydrates, hormones—and the life force necessary for the human organism to produce tissue and other body constituents of the highest quality.

3. Flesh Foods Cause Degenerative Disease

The habitual and frequent use of large amounts of flesh foods in the diet is actually one of the causes of degenerative disease in a substantial percentage of the population. The decrease in, or elimination of, flesh foods from the diet is one of the important steps toward optimal health.

Man's anatomy and physiology are poorly adapted to the processing of meat, and it cannot be done without some putrefaction (in addition to the putrefaction already present in the meat at the time it is consumed). The result is toxemia, which is the starting point of degenerative diseases like gout, arthritis, heart disease, hardening of the arteries, stroke, osteoporosis, cancer, etc.

3.1 Anatomical and Physiological Basis for Rejecting Flesh Foods

There is a sound anatomical and physiological basis for the recommendation against the consumption of flesh foods. The human anatomy and digestive system are totally dissimilar from those of carnivores, which have sharp claws and teeth for killing and tearing. Carnivorous animals have short intestinal canals, and strong secretions of hydrochloric acid, so as to quickly digest and expel the waste products of the flesh they consume, before putrefaction can occur.

Flesh-eating animals also have the enzyme uricase, which breaks down uric acid into a harmless substance called allantoin; man does not possess this enzyme. Vegetable proteins, including nuts and seeds, contain enough carbohydrates to render this enzyme unnecessary.

The carbohydrate content of nuts also prevents a process called de-amination. Because the carbohydrate content of flesh foods is negligible, conventional nutritionists advocate eating protein with a carbohydrate since it is thought that the presence of carbohydrates is necessary for the digestion of protein and, when none are present, the liver will break down some of the amino acids and convert them to carbohydrates. If this is true (and the experiments have not been conclusive), then it is obvious that the nuts supplied to us by Nature come completely packaged along with their digestive requirements, while flesh foods do not.

Lesson 18 of this course includes a preliminary discussion of this subject and contains an interesting chart, "Classification of Animals," which is an effective demonstration of the fact that man is not a carnivore.

One of the comparisons that is made in this chart is the length of the alimentary canals, which are three times the length of the body in the carnivora, ten times the length of the body in the omnivora, and twelve times the length of the body in the anthropoid apes and in humans. These figures, of course, are approximate. Gray's anatomy gives the length of the human alimentary canal as approximately thirty feet.

Hereward Carrington, in *The Natural Food of Man*, says that some have made the blunder of calling the proportionate length of the human alimentary canal one to six instead of one to twelve, by doubling the height through measuring humans while they are standing erect. He says, "This measurement is evidently wrong, for it includes the length of the lower extremities, or hind legs, whereas, in other animals, the measurement is made from the tip of the nose to the end of the backbone."

The human digestive tract is about four times as long as in the carnivorous animal. The gastric juices of humans have less active antiseptic and germicidal properties. The intestine of the carnivore is short and smooth, to dissolve food rapidly and pass it out of the system. The human digestive tract is corrugated or sacculated, for the express purpose of retaining the food as long as possible in the intestine until all possible nutriment has been extracted from it.

These (and the other anatomical and physiological characteristics of the human digestive system) are the

worst possible conditions for the processing of flesh foods. The excessive secretion of bile (necessitated for the digestion of flesh foods) may result in the premature breakdown of the liver, and the large quantities of uric acid created by a flesh diet may have disastrous effects on the kidneys. Dr. Robert Perk says that the excess of uric acid "causes contraction of the minute blood vessels, resulting in high arterial tension and often the blocking of the blood vessels by the uric acid. This results in serious interference with the circulation and blood supply to the tissues and throws great strain on the vital organs, especially the heart and kidneys." (*Scientific Vegetarianism*, Szekely, p. 44.)

3.2 Morbid Results of Eating Flesh Foods

Meat is the most putrefactive of all foods. Flesh, when eaten by humans, tends to undergo a process of decay in the stomach, causing a poisoning of the blood. Putrefaction in meat eaters is evidenced by bad breath, heartburn, eructations, and the foul stool and odorous emissions—absent in vegetarians—and it is probable that the attempts of the body to eliminate these wastes has a profound influence on the shortening of man's life span.

If the body fluid that bathes our cell's is overloaded with waste, causing an excessive secretion of bile—fatigue, weakening and aging are the inevitable results. The accumulation of toxic substances in the body causes the deterioration of the intestinal flora, and the blood vessels gradually lose their natural elasticity—their walls become hardened and thickened. Irreversible damage to the organism proliferates.

3.3 Can You Face The Ugly Truth About Meat?

Meats contain waste products that the animal did not get to eliminate, and toxic hormones and fluids released into the blood stream and tissues at the moment of the death of the terrified animal.

An animal's cellular life continues after death. The cells continue to produce waste materials which are trapped in the blood and decaying tissues. The nitrogenous extracts which are trapped in the animal's muscles are partially responsible for the flavor of the cooked meat.

Humans who eat the livers of the animals are bombarded with an even greater concentration of waste products and toxic substances. The liver, being the filtering organ of the body, is loaded with elements the body cannot use, which are trapped in the liver and remain there. Liver eaters are treated to higher concentrations of mercury and artificial hormones, plus other "goodies" that remain in the animal's disposal system.

Liver increases, even more than muscle meat, the amount of creatine in the urine. Creatinuria (abnormal amounts of creatine in the urine) is involved in endocrine (glandular) disorders.

Meat not only harbors the bacteria infecting the living animal, but it may also carry molds, spores, yeasts and bacilli picked up during postmortem handling.

A book on meat processing explains that the flesh becomes more tender and palatable by the process of ripening, hanging and maturing (aging). Vic Sussman, in *The Vegetarian Alternative*, pp. 149-150, says, "Few meat eaters would like to hear the words putrefaction, rigor mortis, and rotting applied to their sirloin and pot roast. But flesh is flesh, though the euphemisms ripening, toughening and enzymatic action are kinder to the ear."

Trained government inspectors use sight, smell and touch in a constant battle to protect meat eaters from intentional and accidental abuses. But effective regulation of flesh food is enormously difficult. Sussman says (p. 151) "Even the most conscientious inspectors are forced by circumstances and the pressure of time to let suspect carcasses leave the plant."

Those who eat processed meats also get many of the odds and ends of the animals—eyes, ears, bladders, lips, udders, snouts and parts of the bones and skin. Not even a meat inspector can tell from what part of the body the sausages and frankfurters came—it is all meat tissue, and all legal. (Woolsey, *Meat on the*

Menu…, pp. 21-22.)

In his pediatrics textbook, Dr. Emmet L. Holt of New York City says that if two dogs were put on a leash and one fed water and the other beef tea, the dog getting the water would live longer, because beef tea does not contain any nourishment if the fat is skimmed off, but does contain urinary wastes, which poison the dog.

Owen S. Parrette, M.D., in *Why I Don't Eat Meat*, p. 13, says that when he was a medical student, the class was given glass test tubes to be used for growing bacteria that are present in human diseases such as typhoid, staphylocci, and bubonic plague. "The professor had us make up some beef tea, pour a little into each test tube, and place a cotton cork on top. We sterilized the tubes and later inoculated them with these dangerous bacteria. The germs all thrived on the beef tea. It was a perfect medium for them."

Carrington also says (p. 109), "Meat-eating is the more or less direct cause of various diseases." The tapeworm embryos are carried by beef, pork and fish. The deadly trichina parasite is found mainly in pork, but also in fish, fowl and other meats. Trichinosis closely resembles cerebro-spinal meningitis. Tuberculosis has been communicated from cattle, typhoid fever from oysters. Epilepsy has been traced to meat-eating.

Twenty-six diseases, including salmonellosis, staphylococcus and psittacosis, are known to be common to both man and poultry. (*Meat on the Menu*..., Woolsey, p. 27.)

Since little or no progress has been made in eradicating these dangers, the only people who are immune are those who never eat meat. Authorities recognize that the basic problem is with the nature of the product itself. The National Academy of Science reports, "Reluctantly, we are forced to recognize the infeasibility of eradicating salmonellosis at this time." ("An evaluation of the Salmonella Problem," National Academy of Sciences, Washington, D.C., 1969)

The late Dr. John Harvey Kellogg said, when he sat down to his vegetarian meal, "It is nice to eat a meal and not have to worry about what your food may have died from."

3.4 Meat-Eating Predisposes to Disease

In addition to directly causing certain diseases, meat-eating also predisposes the body to disease. In pestilences of any character, meat-eaters are the chief sufferers. Wounds heal far more rapidly in vegetarian soldiers. Carnivores are far more subject to blood poisoning than are vegetarians. Vegetarians survive major operations more frequently than meat-eaters. (Carrington, pp. 111-112).

John A. Scharffenberg, M.D., in *Problems with Meat* says, "Meat is a major factor in the leading causes of death in the United States, and probably in similarly affluent societies. In fact, next to tobacco and alcohol, meat is the greatest single cause of mortality in the United States." He makes this statement on p. 101 of his well-documented book, in summarizing "the formidable and persuasive scientific evidence we now have." He marshals this scientific evidence of the disease potential of meat and the relationship of meat to these specific problems: atherosclerosis, cancer, decrease in longevity or life expectancy, kidney disorders, osteoporosis, salmonellosis, and trichinosis. He quotes an editorial statement in the Journal of the American Medical Association: "A vegetarian diet can prevent 97% of our coronary occlusions." (Editor: Diet and Stress in Vascular Disease, JAMA, 76:134-35, 1961).

Several more recent, well-organized studies have identified the risk factors of atherosclerosis and heart attacks: a 1970 study by twenty-nine voluntary health agencies, in cooperation with the American Medical Association (these study groups consisted of many of the nation's top scientists); a 1977 study by the Senate Select Committee on Nutrition and Human Needs: a twelve-year Finnish Mental Hospital Study (Effect of cholesterol-lowering diet on mortality from coronary heart disease and other causes, *Lancet* 2:835-38, 1972); and a 1975 study comparing Seventh Day Adventists who had different dietary habits. The Seventh Day Adventist study revealed a 64% vulnerability to coronary heart disease in meat-users, 40% for lacto-ovo-vegetarians, and 23% for total vegetarians. The 1977 study by the Senate

Select Committee on Nutrition and Human Needs reported the significant deleterious influence of. the consumption of dietary cholesterol (animal fat) and recommended the increased use of fruits, vegetables and whole grains, and a decrease in the use of foods containing saturated fat (animal fat).

4. Vegetarianism Is Receiving More Attention

A consideration of an article from *Today's Health*, published by the American Medical Association, appeared in the February 1975 *Readers' Digest*. The article states: "Americans are meat eaters by tradition. Yet statistics show that vegetarians in this country are thinner, in better health, with lower blood cholesterol, than their flesh-eating fellow citizens. They may even live longer."

The article mentions studies by Dr. Frederick Stare (!!) of Harvard and Dr. Mervyn Hardinge, Loma Linda, California School of Health, indicating that vegetarians have consistently lower levels of cholesterol. (It is rare indeed that Dr. Stare is ever "caught" criticizing the conventional diet.)

Quoting further from the article: "Meat eaters also may be bothered by poor elimination. Food with a low fiber content, such as meat, moves sluggishly through the digestive tract, making stools dry and hard to pass. Vegetables, by contrast, retain moisture and bind waste bulk for easy passage."

The article cites documentation of the excellent health and longevity enjoyed by the Hunzas of Pakistan and the Otomi Indians of Mexico, confirmed by field investigations of these nonmeat cultures.

Reference is made to the experiences of Denmark and Norway, where the general health of the people improved when vegetarian diets were adopted during World Wars I and II, including a significant reduction in heart disease. "Both nations, however, reverted to meat diets as soon as the crises passed, and subsequent studies showed that the temporary health advantages apparently subsided."

Remember, THIS INFORMATION WAS PUBLISHED IN THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION IN 1975. Since then, vegetarianism and low-fat diets in general have been receiving more attention, and reports are trickling down of medical doctors who are recommending eliminating meat from the diets of arthritis and cancer patients, and even of medical doctors who are acknowledging the health benefits of vegetarianism for themselves and all of their patients.

5. The Evidence Is Mounting

Autopsies performed in Korea showed that 75% of American soldiers had hardened arteries, regardless of their age. Korean soldiers, on a simple diet of vegetables, grains, and very little meat, showed essentially no hardening of the arteries.

Worms are found in fish taken in the cold waters of Yellowstone Lake, and even in fish taken twenty miles out into the Gulf of Mexico. Dr. Parrette's *Why I Don't Eat Meat*, published in 1972, says on page 17, "On the desk in in front of me is a clipping from a recent *Los Angeles Times* entitled "Disease Causes Halt of Some Trout Imports." The article tells of the California Fish and Game Department turning back six tank cars of rainbow trout fingerling that were shipped into California to stock our lakes and streams,

but were found to be infected with liver cancer ... Rabbits are susceptible to diseases of many kinds. As a lad, I had a friend who used to hunt rabbits and sell them. I often helped him clean them and noticed that nearly all the cottontails were infected with tapeworm."

The rapid rise of leukemia in cattle calls our attention to the fact that blood cancer, or leukemia, is now a major cause of death among children in the United States.

Meat has been implicated in a wide variety of factors and processes known to be associated with cancer, including the following:

1. Chemical carcinogens, added to the meat, or produced by heating.
2. Cancer viruses found in tumors in animals, transmittable to humans.
3. Lessened host resistance to invasive disease.
4. Lack of fiber in meat, increasing transit time through the colon. Adequate fiber is also necessary to help remove bile acids from the gastrointestinal tract. (Colon cancer patients tend to produce more bile acids than other people.)
5. Rapid maturation, early menstruation, higher rates of breast cancer.
6. High-fat diet is also associated with breast cancer.
7. High Prolactin levels—Prolactin is a pituitary hormone promoting milk formation and lactation. A high-fat diet increases the prolactin-estrogen ratio, which then enhances mammary tumor growth. When humans change from a meat to a vegetarian diet, the prolactin surge appears to be reduced to almost one-half. A diet high in fat, meat and milk (high in cholesterol) tends to increase the incidence of breast cancer. (Dr. Scharffenberg, *Problems with Meat*.)

It has been demonstrated that cancer can be transmitted from one (animal or human) species to another.

When one considers the evidence of the cancer-causing potential of meat, it seems incredible that it is ignored by so many intelligent people. Malignant tumors are found in animals. Many years ago I saw a tremendous tumor on the "innards" of a chicken that had been sold at the City Market in Indianapolis. I witnessed the noisy altercation between the indignant customer who was returning the chicken and the proprietor of the stand. An .exchange was made, and the returned chicken was dipped in water and returned to the sales counter.

In addition to cancerous tumors in fowl, there is a carrier form which is impossible to detect except by painstaking laboratory experiments. "The conclusions drawn must consider the possibility that all chickens show the basic microscopic lesions of lymphomatosis." (Dr. Eugene F. Oakberg, *Poultry Science*, May, 1950, p. 434)

Colon cancer is acknowledged to be the predominant type of cancer in the United States and the second leading cause of cancer mortality. An article in the Wall Street Journal several years ago tells about a study of colon cancer by Dr. William Haenzel, Dr. John W. Berg and others at the National Cancer Institute, as a result of which Dr. Berg said, "There is now substantial evidence that beef is a key factor in determining bowel cancer incidence."

Scientists have reported evidence that two characteristics of meat-based diets are specific influences in colon cancer:

1. Fecal transit item; a low-fiber diet allows carcinogens to be concentrated and held in contact with the bowel mucosa for long periods, while a high residue diet (a vegetarian diet) produces more rapid passage of body waste.
2. Influence of the diet on the amount of carcinogens produced by the body. It has been found that meat fat tends toward production of carcinogens in the intestine.

Dr. Ernest L. Wynder, president of the American Health Foundation, and a long-time cancer researcher, reported long ago that the results of his studies had convinced him of the cancer hazards of diets high in animal fats. On March 31, 1982, Dr. Wynder, now renowned as the health detective who first linked smoking and cancer a generation ago, reiterated his findings. He said that a low animal fat, high fiber,

fresh fruit and vegetable diet helps fight both cancer and heart disease. He said that the American Heart Association and the National Heart, Lung and Blood Institute also recommend such a diet.

Sussman (*The Vegetarian Alternative*, p. 61) gives documented reports about experiments with an anti-cancer enzyme, which can be produced by the liver, depending on the components of the diet. Dr. Leo Wattenberg of the University of Minnesota School of Medicine isolated the dietary elements that increased ability to produce this enzyme. The agents (called indoles) that induced formation of this enzyme were found in alfalfa, Brussels sprouts, cabbage, celery, turnips, broccoli and cauliflower. Citrus fruits also contain similar enzyme-inducing agents (flavones) and beans and seeds yield a type of plant protein (lectins) that also has demonstrated cancer-resisting effects.

Dr. Anthony B. Miller, director of the National Cancer Institute of Canada, said: "Evidence suggests that certain foods, particularly high intake of dietary fat, are associated with increased risk of colorectal, pancreatic, breast, endometrial, ovarian, prostate and possibly renal cancer." He also recommends increased consumption of fresh fruits and vegetables.

Although these doctors aren't specifically advocating totally vegetarian diets, it is interesting to note that more and more "conventional" professional people are warning against high consumption of animal fat, and recommending increased use of fresh produce.

Hygienists, of course, prefer not to use any part of the animal as food, and find it difficult to understand how so many people can ignore the overwhelming evidence against the use of flesh in the diet.

6. Modern Methods Accentuate Risks

Most of the deleterious influences of meat-eating which have been discussed thus far apply to any flesh foods, even those which are raised the "old-fashioned" way, without chemicals or hormones. The "modern" methods of producing and marketing flesh foods, and fish taken from polluted waters, increase the risks astronomically.

Those who eat processed meats are not only treated to sodium nitrate and sodium nitrite (which, together, form cancer-causing nitrosamines in the body), they also get sodium sulphite. Sodium nitrate and sodium nitrite are used as preservatives to retard the putrefaction process in processed meats (frankfurters, salami, bologna, sausage, etc.) The food can still spoil, but it is not as obvious.

Consumer Reports, February 1972, p. 76, reported that, after studying samples from thirty-two brands of frankfurters bought in supermarkets throughout the United States, researchers stated: "Food experts generally agree that putrefaction has set in when a frankfurter's total bacteria count has reached ten million per gram. With that as a yardstick, more than forty per cent of the samples we analyzed had begun to spoil. One sample tested out at 140 million per gram."

Dr. Charles C. Edwards, Commissioner of the Food and Drug Administration, testified before a House Subcomittee in March 1971, stating that sodium nitrite is potentially dangerous to small children, can cause deformities in fetuses, can cause serious damage to anemic persons, and is a possible cause of cancer.

Sodium sulphite is used to give meat a fresh, red appearance, even after it has become rancid and turned black. This chemical will change it back to bright red, and will also "miraculously" eliminate the strong odor of putrefaction.

Dr. Michael Jacobson of the Center for Science in the Public Interest says that sodium nitrate and

sodium nitrite in processed meats have caused numerous cases of blood poisoning (methemoglobinemia), many reported in medical journals. He says that meat contains residues of more than a dozen chemicals used to fatten the animals— all of them proven in the laboratory to cause cancer.

The chemicals and hormones are mixed and administered on the farms by stockmen, who often use greater than recommended amounts, and fail to withdraw drugs far enough ahead of slaughter.

Both penicillin and tetracycline are routinely used in poultry and cattle feed. When the FDA moved toward restricting the addition to animal feed of antibiotics that are also used to combat human diseases (because of the consequent growth of antibiotic resistant bacteria), the meat industry was outraged at the proposal.

Most laws relating to "wholesome" meat apply only to their processing. Some local laws apply to monitoring of sanitary conditions in the market. After that, the consumer is at the mercy of the retailer. Labeling, classification, pricing are variable and undependable. "Economical management" by market owners does not always include discarding spoiled meat. Mold can be washed off, or the meat can be recycled by cutting up, grinding, adding spices, or cooking to disguise color, odor and taste.

"Hearings before a Senate Investigating Committee in 1969 revealed that a major, brand-name, nationally famous meat packer on the West Coast accepted unsold meats from retailers and repackaged and recirculated them. Reasons for returning included moldy, sour, discolored, slick and slimy.'" (Woolsey, "Meat on the Menu..." p. 38).

Charcoal broiled steaks contain an average of nine micrograms of benzopyrene, a cancer-producing agent. The fat dripping into the fire changes the chemical properties of the fat and the benzopyrene goes up in the smoke from the charcoal and coats the steaks.

7. Eating Low On The Food Chain

Eating low on the food chain significantly reduces the threat of pesticide residues. Tests in Britain have shown the pesticide residue levels to be highest in meat eaters, lower in lacto-vegetarians, and lowest in total vegetarians.

This is due to the concentrating factor as the contaminant goes through the additional link in the ecological chain, and the animal concentrates the pollutant in its body. The meat eater may eat in a few minutes the pesticides that an animal has accumulated over a lifetime.

A study by the Washington, D.C.-based Environmental Defense Fund revealed that breast milk of vegetarian women contained significantly lower levels of pesticide residues than that of meat-eating women.

Further research by author Nat Altman disclosed that vegetables and nuts contain about 1/7 the pesticide residues of flesh foods; fruits and legumes about 1/8 as much; and grains about 1/24 as much.

8. Meat-Based Diet Presents Complex And Grave Nutritional Problems

Even beyond the grave dangers presented by meat-based diets is the misconception that meat is an ideal nutritional source against which vegetable proteins are measured and found wanting. The fact is that it is much more difficult to have even a reasonably good diet with meat than without it.

8.1 "Complete Protein" Status of Meat?

In the first place, even the much vaunted "complete protein" status of meat is, at best, based on a colossal error (if not a hoax). The complete protein of the animal could exist only if the animal were consumed raw and whole. Meat-eating animals eat the blood, bones, cartilages, liver, etc. of their prey—not just the muscle and fat. They eat it raw—so that they do not lose any of the mineral elements. The muscle meats (most commonly consumed by humans) are grossly inadequate as a protein source.

On the other hand, humans who eat the livers of the animals don't win either. As previously indicated, those who eat liver are exposed to greater concentrations of morbid substances. Even though liver is touted as an optimal source of such substances as iron, Vitamin A and Vitamin B-12, it can hardly be regarded as anything remotely resembling wholesome food.

For years, conventional nutritionists have maintained that complete and optimal nutrition is assured on a diet using animal foods as the primary source of protein, and that a vegetarian diet presents many problems. Dr. Scharffenberg produces well-documented scientific evidence (*Problems with Meat*) indicating that *the truth is exactly the opposite*.

8.2 Meat Deficient in Vitamins, Minerals, Fiber and Carbohydrates and Excessively High in Fat and Concentrated Protein

Meat is one of the main sources of food that provide little fiber—*flesh foods lengthen the average transit time through the gastrointestinal tract from thirty hours to seventy-seven hours*.

Colon cancer patients produce more than normal amounts of bile acids which enhance cancer growth. A more rapid transit time through the digestive tract reduces exposure time to these acids.

Meat contains virtually no carbohydrates and is excessively high in fat and concentrated protein.

Dr. Bircher-Benner, the great Swiss physician, said, "Meat does not give strength. Its composition is one-sided, lacking certain minerals and vitamins, and it introduces too much fat and protein into the system, disturbing the balance of nutrition and giving rise to intestinal putrefaction."

8.3 Meat is Highly Stimulating and Innutritious

Hereward Carrington, *The Natural Food of Man*, p. 114, says, "In the first place it must be pointed out and insisted upon that meat is a highly *stimulating* article of food, and for that reason, innutritious. Stimulation and nutrition invariably exist in inverse ratio—the more the one, the less the other, and vice versa. The very fact, then, that meat is a stimulant, as it is now universally conceded to be, shows us that it is more or less an innutritious article of diet, and that the supposed "strength" we receive from the meat is due entirely to the stimulating effects upon the system of the various poisons, or toxic substances, introduced into the system, together with the meat. It is for this reason that those who leave off meat and become vegetarians experience a feeling of lassitude and weakness for the first few days—they lack the stimulation formerly supplied, and now notice the reaction which invariably follows such stimulation. This feeling of weakness, or "all-goneness," is therefore to be expected, and is in no way a proof that the diet is weakening the patient. Let him persist in his reformed manner of living for some

time, and he will find that this reaction wears off, and that a general and continued feeling of energy and well-being follow."

8.4 Results of High Protein Diets

Organism Subjected to Toxic Byproducts

Protein is the most complex of all food elements, and its utilization is the most complicated. People with impaired digestions will find it preferable to ingest a lesser quantity of concentrated protein, which they are capable of utilizing, rather than a greater quantity, which not only cannot be processed efficiently, but which may poison the body. When protein is eaten in greater amounts than the body is capable of utilizing, the organism is subjected to the toxic byproducts of protein metabolism, which it has been unable to eliminate—and the inevitable result is degenerative disease.

The tremendous amounts of protein frequently recommended—75 to 100 grams daily (or more)—are far in excess of the body's needs, and are the source of much trouble.

The famous nutritionists Dr. Ragnar Berg, Dr. R. Chittenden, Dr. M. Hindehede, Dr. M. Hegsted, Dr. William C. Rose, and others, have shown in extensive experiments that our actual need for protein is somewhere around thirty grams a day, or even less. Many leading contempporary scientists and nutritionists in Europe, such as Dr. Ralph Bircher, Dr. Bircher-Benner, Dr. Otto Buchinger, Jr., Dr. H. Karstrom, Prof. H.A. Schweigart, Dr. Karl-Otto Aly, and many others, are in full agreement with the findings of Drs. Berg, Chittenden, Rose, et al, and are recommending a low protein diet as the diet most conducive to good health.

High Incidence of Degenerative Diseases

The Seventh-Day Adventists and The Church of Jesus Christ of Latter Day Saints, who advocate a low animal-protein diet, have fifty to seventy per cent lower death rates than those of average Americans. They also are reported to have a much lower incidence of cancer, tuberculosis, coronary diseases, blood and kidney disease, and diseases of the digestive and respiratory organs.

Negative Lime Balance (Calcium Transfer)

Bone calcium is at dangerously low levels in those using meat as compared to vegetarians, especially in people over fifty. A high-protein diet (especially meat protein) increases the urinary excretion of calcium. Thus vegetarians are less prone to osteoporosis (porous bones).

H. J. Curtis' *Biological Mechanism of Aging* gives documentation of the role of high protein diets, particularly animal protein, in causing osteoporosis. Calcium is transferred from the hard tissues (bones) to the soft tissues (arteries, skin, joints, internal organs and eyes). The transfer of calcium to the soft tissues results in catastrophic fractures, hardening of the arteries, wrinkling of skin, arthritis, the formation of stones, cataracts, high blood pressure, degeneration of internal organs, loss of hearing, senility and cancer.

A study of elderly female vegetarians at Michigan State University showed they lost less bone to osteoporosis than a group of the same age that ate meat.

Researchers at the University of Wisconsin found that when the protein intake of young men was raised to 140 grams per day, they all proceeded to lose bone calcium, even though they took liberal amounts of calcium and magnesium supplements and protein extracts which contained no fat and little phosphorus —the supplements didn't help at all.

Young men had strong bone retention with protein intake of around fifty grams per day—only a reduction in protein consumption avoids the threat of osteoporosis.

Athletes who eat much meat are especially susceptible to arthrosis, a degenerative process of the joints. Among twenty conventional-diet professional football players who were observed for eighteen years, 100% incidence of ankle arthrosis and 97.5% of knee arthrosis were found.

A negative lime balance is easily produced by increased protein supply. The eminently important minerals—potassium and magnesium—are known to be deficient in an every day diet rich in meat, eggs, cheese, fat, sugar and grains, but richly present in a full-value vegetarian diet predominating in raw food.

Rapid Maturation and Early Death

Examples are repeatedly cited of robust and apparently healthy individuals who are heavy meat-eaters. Dr. L.H. Newberg of Ann Arbor University found that when he fed large quantities of meat to test animals, they grew bigger and more alert than other animals on a vegetarian diet. But three months later these animals contracted kidney damage and died, while the vegetarian animals lived on healthily and happily. (Wade, C., Vegetarianism, Herald of Health, LXXII, Ap. 1967, p. 14)

Accelerated growth = accelerated maturity, accelerated degeneration and accelerated demise. Rapid growth and short life go together, verified by repeated studies and experiments.

Since rapid maturation occurs as a result of high protein diets, this produces earlier onset of menstruation. Girls who start menstruation before thirteen have a 4.2 times greater incidence of cancer than those who start several years later. In countries with higher meat fat consumption, breast cancer mortality rates increase, and there is a higher incidence of colon and prostate cancer.

It must be emphasized that diet alone is not the single component in cancer and other degenerative diseases, but optimal nutrition does play a fundamental and preventive role, and faulty dietary habits play a causative role.

Kofranyi of the Max Planck Institute in Russia proved that complete nitrogen balance and performance ability could be maintained on 25 grams of protein daily, and Oomen and Hipsley found a population that develops not just full health, but magnificent structure and corresponding physical performance on 15 to 20 grams of protein daily.

8.5 The High-Protein Hoax

Dr. Bircher-Benner describes the method used by the American Research Council's Food and Nutrition Board to agree on a daily requirement for adults of seventy grams, found in their tables.

Sherman, a member of the board, said that evidence pointed toward a much lower amount, somewhere around thirty-five grams. But if the protein requirement had been set so low, there would have been a public outcry. And so, a corresponding "margin of safety" was adopted, and "seventy grams" was published. Because the scientific basis for this was nonexistent, the word "recommendation" was used instead of "requirement." Of course it was publicly interpreted as the requirement, in fact, as the minimum.

"The smallest amount of food able to keep the body in a state of high efficiency is physiologically the most economical, and thus best adapted for the body's needs." This is the Chittenden concept, stated years ago by Russell Henry Chittenden, which applies forcibly to protein. The average American diet contains 45% more protein than even the National Academy of Sciences recommends, and is certainly not "best adapted for the body's needs."

8.6 Insoluble Problems of Meat-Based Diets

Flesh eating is defended almost entirely on the premise that it is a source of superior proteins. The truth is exactly opposite. The pathological effects of encumbering our bodies with the proteins of other animals is Nature's method of vetoing these proteins for human consumption, in order to promote the

stability of the human species and to protect the health of the individual. Dr. Herbert M. Shelton says (*Animal Foods*—booklet) that allergy and anaphylaxis (see definition) are not mysterious; they are due to long-standing poisoning of the body by excess or inappropriate protein foods.

Animal proteins are often not reduced to their constituent amino acids, but are absorbed in more complex form. Absorption by the body of such partially digested proteins poisons the organism, and so-called "allergic symptoms" may be the result—or gout, arthritis, cancer, or any one or more of a host of degenerative diseases.

A meat-eater must also be concerned about digestive problems caused by too little dietary fiber; circulatory problems due to excessive cholesterol deposits from animal fats; loss of bone mass due to inadequate ingestion and retention of calcium; deficiency of vitamins and minerals; and inadequate carbohydrate intake (without increasing calories).

The Senate Committee recommended fifty to sixty per cent of daily calories from carbohydrates, but, actually, it should be more like ninety percent *(provided, of course, that they are natural and not refined)*.

It is well-nigh impossible to solve such problems on a meat-based diet.

9. A Healthful Diet Without Meat

Dr. Scharffenberg says, "In contrast, contrary to conventional belief, it is simple for a vegetarian to maintain a healthful diet. There is no worry about cholesterol and little concern about saturated fat. Fiber and carbohydrate are adequate without any special calculation. HOW IRONIC THAT FOR SO LONG IT HAS BEEN THOUGHT THAT IT WAS THE VEGETARIAN WHO HAD DIFFICULTY.

IN LEARNING TO GET ADEQUATE NUTRITION... THE OLD WORRIES ABOUT A VEGETARIAN DIET BEING PROTEIN-DEFICIENT ARE GROUNDLESS AND SHOULD BE LAID TO REST." (Caps mine—author)

The intelligently planned meatless diet has none of the disease problems of flesh foods and provides a dependable source of all the nutrients—including adequate protein.

Complex judgments or computations, such as are necessary in planning a meat-based diet, are obviated. It is extremely difficult for meat eaters to maintain a diet low in saturated fat and cholesterol, high in carbohydrates and fiber, and containing adequate calcium to compensate for the effects of meat in increasing excretion and transfer of calcium.

9.1 The Obsolete Amino Acid Theory

One of the favorite arguments of flesh eaters is that proteins from the plant kingdom are "incomplete," because no one plant food contains all of the twenty-three identifiable amino acids (although the carrot, with twenty-two amino acids, comes quite close). Studies of man's physiology, and the effects of his consumption of foods from the plant kingdom, have shown conclusively that it is not necessary to consume all of the amino acids at one sitting, not even the eight (some references say ten) "essential" amino acids that are not fabricated within the body.

The foods we eat are processed by the body, and the amino acids, vitamins and minerals, and other nutrients are reserved in a pool for later use as needed. When we eat, we replenish the reserves in this pool, to be drawn upon by the cell as required. We do not live upon one protein food, but upon the

protein content of our varied diet, which supplies all of the protein needs of the body. Guyton's "Guidance Textbook of Medical Physiology" is authority for this important information. The book contains five pages showing that amino acids are picked up from the bloodstream and cells of the body.

If you have read *Diet for A Small Planet*, you are familiar with Frances Moore Lappe's assumption that it is necessary to consume all the "essential" amino acids at each meal, and her complicated "solution" to this "problem" for vegetarians by combining certain foods from the plant kingdom to form complete proteins, resulting in some abominable food combinations, which, of course, do not take into account human digestive limitations.

Nowhere in Nature is there any evidence of the necessity for such complicated maneuvering to obtain optimal nutrition. Not only are humans not dependent on the animal kingdom for their nutrition—it is also not necessary to play a numbers game with nutrients or foods at each meal.

9.2 The Truth About Amino Acids

New knowledge has completely reversed the old theory, which was based on studies between 1929 and 1950 that used purified amino acids. We eat foods—not purified amino acids Recurring studies reported in the *Journal of the American Medical Association* and other medical journals (since 1950) show that it is not necessary to feed complete protein at each meal. One such study by E.S. Nasset, reported in World Review of Nutrition and Dietetics 14:134-153, 1972, indicated that the body can make up any of the amino acids missing in a particular meal from its own pool of reserves, as long as a variety of foods are included in the diet.

Only gelatin and isolated protein factors are completely devoid of one or more amino acids. "Vegetable protein foods are not lacking totally in any specific amino acid.... the average vegetarian ingests adequate amounts of protein, and the amounts of essential amino acids in the diet not only meet the minimum requirements—they more than twice exceed them." (Scharffenberg, *Problems with Meat*.)

There is also a proliferating availability of additional documentation of the fact that humans and animals fast for lengthy periods, and that, instead of suffering protein deficiency, the end of the fast finds them with restored protein balance. Those individuals who have experienced prolonged fasts (of perhaps fourteen days or longer) invariably have experienced remarkable improvement and hardening of the nails of the fingers and toes. During my twenty-nine day fast in 1967, I marveled at the improvement in my own finger nails, which lengthened and hardened, a new experience for me.

If the body were not capable of storing amino acids, this obviously could not have occurred during a period of abstention from all food. Nor could this have occurred if the protein supply were dependent on continuous and simultaneous external sources of all the essential amino acids.

It is true that protein is not stored in the body in the same sense that excess carbohydrate is stored as glycogen or fat. But the body can compensate for temporary deficiencies by withdrawing what it needs from the pool of materials within the organism—as material is sloughed off intestinal walls, from digestive secretions, and from the autolysis of old cells, fat, etc.

Many foods from the plant kingdom contain so-called "complete" proteins; that is, humans may obtain from them all of the essential amino acids which they cannot synthesize, but from which other amino acids may be synthesized as needed.

The argument that the best source for protein is meat because the analysis of animal protein (amino acids, particularly) is much closer to that of the human body than is plant protein is an excellent argument for cannibalism. If that contention were true, all animals would be best nourished by eating their own species since, obviously, that would be the only source of identical protein and their best source of optimal nutrition. I believe that even the heartiest flesh eaters would find this idea repugnant.

Besides, it must be remembered that no human can use the protein in the form in which it is consumed. It must always be disassembled into its constituents and reassembled or synthesized into the particular

protein required by the cells and tissues of the new host. As previously explained, cooked and coagulated animal protein presents great difficulties in this necessary breakdown of the long chains of amino acids.

9.3 Superiority of Uncooked Plant Proteins

All nuts, except the hickory, contain complete proteins. This has been verified by experiments by Cajori, Kellogg and Berg. Sunflower seeds and sesame seeds are in the same category. Peanuts, beans, and a long list of vegetables also contain all the essential amino acids: carrots, Brussels sprouts, cabbage, cauliflower, collard greens, fresh corn, cucumbers, eggplant, kale, okra, peas, potatoes, summer squash, sweet potatoes, and tomatoes. This listing is by no means complete. Most vegetables, of course, contain lesser amounts of amino acids than do concentrated proteins like nuts, seeds and legumes. Soybeans (which may be sprouted and eaten raw) contain all of the essential amino acids—in fact, a higher quantity of all amino acids (weight for weight) than meat or eggs.

Some grains do not contain all of the essential amino acids (as far as has been presently determined). When grains are used together with an abundance of raw green vegetables, whichever amino acids are missing from the grains are well supplied by the green vegetables. But remember that you do not need to concern yourself about securing all of the essential amino acids at one sitting.

An adequate supply of protein in the overall diet is indispensable for normal health and well-being. But such an adequate supply of protein is not dependent on killing animals for food, nor upon using a calculator to add up the amino acids at each meal.

Use a variety of the available Hygienic foods—choosing from fruits, vegetables, nuts, seeds and sprouts —not all at each meal, of course—or even necessarily, every day—but over the course of the weekly diet.

Dr. Hoobler, who did some research at Yale University, demonstrated the superiority of nut protein. It was he who proved conclusively that the protein of nuts not only provides greater nutritive efficiency than that of meat, milk and eggs, but that it is also more effective than a combination of these three animal proteins.

Fruits and vegetables, though containing relatively smaller amounts of protein in their natural state, are excellent sources of supplementary amino acids for complete and optimal nutrition.

The protein in raw nuts and seeds, and in uncooked fruits and vegetables, are readily available to the body, and are therefore said to be of high biological value. During the process of digestion, the long chains of amino acids (the building blocks of protein) are gradually broken up for the body's use in synthesizing its own protein (as any species must do).

It must be reiterated and re-emphasized: when proteins have been cooked or preserved, they are coagulated. Enzyme resistant linkages are formed which resist cleavage, and the amino acids may not be released for body use. In this case, the protein is useless and/or poisonous to the body, becoming soil for bacteria and poisonous decomposition byproducts.

Since the nutrients available from raw food are several hundred per cent greater than those available from food that has been cooked or otherwise processed, and since, obviously, flesh foods are usually not eaten raw by humans, this in itself would be an important reason why first-hand protein foods from the plant kingdom, which may be eaten uncooked, are superior.

Raw food decreases the need for protein in yet another way: the usual conventional diet requires six to eight grams of protein per day for the synthesis of digestive juices. But raw food, with all the enzymes intact, economizes on digestive enzymes.

Nuts are subject to few contaminating influences; they supply everything we can get from flesh foods, in better form, better condition, cleaner, more easily used, and without the risk of eating chemicalized or

diseased flesh foods. And nuts can be eaten without cooking or processing.

Utilization of nuts is best if eaten with uncooked plant foods of high biological value, such as large green salads. Sprouted grains and legumes are excellent supplementary sources of protein of high biological value.

In abnormal conditions, as after a prolonged fast, recovery from a debilitating disease, during lactation or pregnancy, or during weight training, a slightly greater amount of protein may be necessary, *if not in excess of the digestive capabilities of the body*. Concentrated proteins are more difficult to digest than most other foods, and must be consumed within individual limitations rather than according to charts.

10. Vitamin-B12

Some people are fearful that a diet which does not include animal proteins will be deficient in Vitamin B-12, and that they may become victims of pernicious anemia. Beef and beef liver are said to be the finest sources of B-12. Well, where does the herbivorous cow get this vitamin? Vitamin B-12 is manufactured by the friendly bacteria in the animal's intestinal tract. This is true for all vegetarian animals, including the human being, as well.

A deficiency of Vitamin B-12, which is a forerunner of pernicious anemia, is not necessarily due to dietary inadequacy. A report released from a Vitamin B-12 Conference stated, "Pernicious anemia appears to arise not from shortage in the diet, but from impairment of the ability to absorb Vitamin B-12." (Proceedings of the Nutrition Society, 71st Scientific Meeting, London School of Hygiene and Tropical Medicine, January 5, 1952, p. 295)

Study after study has shown that the deficiency of Vitamin B-12 is due to the lack of absorption of the vitamin from the intestinal tract, due to the absence of "intrinsic factor," a substance which is normally present in the gastric juices.

Putrefactive bacteria can destroy friendly bacteria, thus inhibiting the synthesis and absorption of Vitamin B-12. The principal cause of putrefaction in the digestive tract is the ingestion of cooked animal protein (though putrefaction can occur as a result of bad food combining, overeating of any concentrated protein foods, chemical additives and drugs).

There have been repeated instances of improvement in the condition of the blood as a result of fasting, plus subsequent improvement in the diet, especially when flesh foods are eliminated.

The myth that plants do not contain B-12 has been propagated and fostered by vested interests. The truth is that B-12 is found in plants in very small amounts. This is consistent with the fact that our need for Vitamin B-12 is miniscule (*under* one microgram (a millionth of a gram) daily, and the body can store it for two to eight years. (Vitamins of the B Complex, 1959 U.S. Department of Agriculture Yearbook of Agriculture, Section on Food, pp. 139-149) Robin Hur's article in this lesson suggests that our actual need for Vitamin B-12 is considerably less than one microgram per day.

Vitamin B-12 has been found in significant amounts in many plant foods, some of which are bananas, dates, greens, peanuts, and particularly sprouts and raw sunflower seeds.

A correspondent to the *New England Journal of Medicine* (12/7/78, p. 1319) notes that vitamin B-12 is manufactured by micro-organisms, making it possible to obtain B-12 from certain seeds and nuts, and from soybeans. He also cites synthesis of the vitamin in the digestive tract of humans when adequate amounts of unheated seeds are eaten, and points to healthy babies who are breast-fed by strict vegetarian

mothers.

In studies on vegetarian humans, Dr. Wolfgang Tiling discovered the synthesis of B-12 in the intestines of children on a soy milk diet.

Dr. Karl-Otto Aly of Sweden examined the Hunzakuts and they showed no B-12 deficiency symptoms, though they have been almost 100% vegetarians for 2,000 years.

Dr. Alec Burton (Australian Hygienic professional) has seen countless people go for 25 to 30 years on vegetarian diets, and never display a deficiency of Vitamin B-12.

Current research at Loma Linda University found excellent B-12 levels for tested vegans (people who eat plant foods only), who eat all, or most, of their food fresh and unheated. Vitamin B-12 is water soluble, and therefore best obtained in raw foods.

Studies have demonstrated that Vitamin B-12 is heat sensitive and normal cooking can destroy as much as 89% of it. High consumption levels of fat and protein, refined foods and tobacco increase the need for B-12, while at the same time interfering with the synthesis and absorption of B-12. Thus the conventional meat-eater may indeed be a more likely candidate for Vitamin B-12 deficiency and pernicious anemia than the individual on an adequate vegetarian diet.

I have known a number of people who were found to be deficient in B-12 and who were receiving injections of this vitamin, but they were all flesh eaters. I have never known a Hygienist or vegetarian who was receiving these injections.

The list is long of children who nursed at their vegan and Hygienic mothers' breasts, and grew into exemplary specimens of perfect health: Dr. Virginia Vetrano's daughter and granddaughter, Helen Lamar's son, Dr. Bressak's children, Jay Dinshah's children, and others.

Vitamin B-12 (Cobalamin) is the only vitamin that contains a mineral—cobalt. It has been hypothesized that supplying this mineral to growing plants will increase their potential for being a source of the natural phenomenon which results in the production of Vitamin B-12.

11. Recap

Dr. Scharffenberg (p. 84, *Problems with Meat*) says: "The reality of the problems" (with meat-based diets) "is evident in the high mortality from cancer and atherosclerosis, among other disease problems, which makes it tragically obvious that it is not easy for the average person to learn how to eat properly on a meat diet."

A summary of the specific health reasons for eliminating flesh foods from the diet follows.

1. Flesh foods cause putrefaction by decomposing in the intestines, reducing the functioning of intestinal flora, and interfering with the synthesis and utilization of Vitamin B-12.
2. Their byproducts of toxic substances (uric acid, purines, etc.) and carcinogens cause degenerative diseases.
3. Saturated fats from meat produce abnormal cholesterol deposits, causing heart and arterial degeneration.
4. Meats contain parasites, chemicals and hormones, which damage the body and cause disease.
5. Diseased animals pass their diseases on to humans.
6. Flesh foods provide a favorable medium for the multiplication of the bacteria of disease.
7. Flesh foods lessen the resistance of the body to disease.

8. Vegetarians have stronger bones.
9. Meat-based diets present complex and grave nutritional problems.
10. People who eliminate meat from their diets are better nourished, and have better health and greater longevity than meat eaters.

As indicated at the beginning of this lesson, there are many other arguments against the use of flesh foods. In addition to the reasons listed there (that are not specifically health-related), the following should be included:

1. The lack of strength and endurance of meat-eaters, compared with vegetarians, has been repeatedly demonstrated (e.g. Olympic champions, etc.).
2. A meatless diet is conducive to symmetry and normal development of the human body.
3. A meatless diet improves the various senses and renders them more acute.
4. Meat, being highly stimulating, tends to cause overeating and other excesses (e.g. alcohol).
5. Meat-eating influences the mental, emotional and moral life. Flesh foods tend to make a person pugnacious.

The poet Shelley maintained that there is no disease, bodily or mental, which a meatless diet does not mitigate. He said, "On a natural system of diet, old age would be our last and only malady."

12. Questions & Answers

How can I be sure I am getting enough protein? What percentage of the Hygienic diet should be concentrated protein—nuts, seeds or legumes?

> First of all, don't forget the considerable protein in sprouts, bananas, potatoes, and, of course, a variety of vegetables. Most foods (including fruit) contain some protein, even though they are not thought of as protein foods because they do not contain concentrated protein. Concentrated protein foods usually contain somewhere between eight and twenty-five per cent protein. Actually, the protein in the foods that are less concentrated is easier to digest and assimilate than that of any concentrated foods (concentrated proteins, starches, dried fruits).
>
> Dr. Scharffenberg says that if 10% of a vegetarian diet contained concentrated proteins, the person would be getting approximately 56 grams of protein daily. If the concentrated protein were reduced to 5%, the individual would still be getting approximately 34 grams of protein daily—no deficiencies there! Even the Food and Nutrition Board regards 56 grams as the recommended daily allowance and 34 grams as the minimum required daily allowance. Hygienists know we need even less.
>
> Dr. Scharffenberg calculates that about 28 grams would be enough to maintain nitrogen equilibrium, based on a calculation of a nitrogen loss each day equivalent to 20 grams of protein of 100% biological value. Hygienists know that the biological value of uncooked proteins is highest, and it is well-nigh impossible to come up protein-deficient on a Hygienic diet that includes a small percentage of concentrated protein foods. A vegetarian might be protein-deficient if he regularly ate a considerable percentage of "cheat foods" containing refined sugars and starches.

The following two studies indicate:

1. The average vegetarian ingests adequate amounts of protein. (Hardinge, M.G.; Stare, F.J.; "Nutritional Studies of Vegetarians, I. Nutritional Physical and Laboratory Studies." J. Clin. Nutr. 2:73-82, 1954.)
2. The amounts of amino acids in the diets of vegetarians not only meet the minimum requirements— they more than twice exceed them. (Hardinge, M.G.; Crooks, H.; Stare, F.J.: "Nutritional Studies of Vegetarians, V. Proteins and Essential Amino Acids." J. Am. Diet Assoc. 48:25-28, 1966.)

Can humans be infected with diseases of plants?

There is absolutely no evidence that diseases of plants can be transmitted to humans.

I am under the impression that only hogs are injected with trichinosis—and that other meats do not carry these larvae.

The trichinae do originate in the hog. But, in 1974, New Jersey had more cases of trichinosis from beef than from pork. It seems that kitchens use the same knives and meat grinders for the beef and pork, and the trichinae may be thus transmitted to the beef. Studies by the New Jersey Health Department and the National, Center for Disease Control showed that as many as 8% to 20% of stores had beef contaminated with pork. (National Communicable Disease Center: Trichinosis Surveillance, Atlanta, May 1969)

Is the "Prudent Diet" the same as the Hygienic diet?

No, but it is several steps in the right direction. The Prudent Diet is one that was used by Dr. Norman Jolliffe of New York City's Bureau of Nutrition in an "anti-coronary" club. Dr. Jolliffe was successful in reducing the incidence of heart problems by one-half during a ten-year period. The Prudent Diet is low in meat, cholesterol, saturated fat and calories, and high in fruits, whole grains, vegetables and legumes.

How would you rate the health hazards of meat as compared to other health hazards?

I believe Dr. Scharffenberg's Health Hazard Poll is fairly accurate. He rates the various health hazards as follows:

25% Tobacco
25% Meat
15% Dairy Products, Eggs, High-Fat Foods
10% Obesity
10% Lack of Exercise
15% Alcohol, Tea, Coffee, Stress, Sugar, Snacks, Lack of Sleep, etc.

Dr. Scharffenberg includes "No Breakfast" in the final 15%, which I left out, because Hygienists know this is definitely not a health hazard, but an excellent practice. I am in basic agreement with Dr. Scharffenberg on his other factors, except that I know that lack of exercise deserves a larger percentage. Alcohol, a metabolic poison, should also be much higher on the pole.

My Health Hazard Poll would look like this:

30% Tobacco and Alcohol
25% Flesh Foods

25% Lack of Exercise and Obesity
10% Dairy Products and Eggs
10% Tea, Coffee, Stress, Sugar, Snacks, Lack of Sleep, etc.

Isn't it true that when meat is "bled," as in kosher meats, all or most of the toxic wastes are drained off?

Some may be, but not enough to really matter, especially as far as urea and uric acid are concerned. Most of the flavor of meat is due to these wastes. If all the blood were really drained off, the meat would be almost tasteless. Besides, many of the waste products are trapped in the tissues themselves. In addition to the urea and uric acid, there are large amounts of adrenalin produced during the pre-slaughter and slaughtering, dead and virulent bacteria, contamination from fecal matter, and, of course, various chemicals and hormones. There is no way to make meat really fit for human consumption.

I know that a vegetarian diet is said to regulate (or actually lower) the serum cholesterol level. Is there documentation for this claim?

A diet high in fiber increases the amount of lipids (fatty substances) eliminated by the body in the feces. Plant sterols—substances with a chemical structure similar to that of cholesterol—appear to help in the regulation of the human cholesterol level. Pectin (contained in fruits and vegetables) has also been shown to actually lower abnormal serum cholesterol levels. Fifteen grams of pectin eaten daily (corresponding to the upper level found in natural fruit and vegetable diets) result in an average decrease by 5% of the serum cholesterol in a three-week period. (*Unmeat*, Stoy Proctor, p. 16.)

Four studies (among many others) which have been published and reported in scientific journals, documenting these phenomena, are listed below:

1. A. Keys, F. Grande, J.T. Anderson, "Fiber and Pectin in the Diet and Serum Cholesterol Concentration in Man," Society for Experimental Biology and Medicine, Proceedings, Vol. 106 (1961) p. 555.
2. A.R.P. Walker and U.B. Arvidsson, "Fat Intake, Serum Cholesterol Concentration, and Atherosclerosis in the South African Bantu," *Journal of Clinical Investigation*, Vol. 33 (1954) p. 1358.
3. C. Joyner, Jr. and P.T. Kuo, "The Effect of Sitosterol Administration Upon the Serum Cholesterol Level and Lipoprotein Pattern," *American Journal of the Medical Sciences*, Vol. 230 (1955) p. 636.
4. Knut Kirkeby, "Blood Lipids, Lipoproteins, and Proteins in Vegetarians," *Acta Medica Scandinavica*, Supplementum 443 (1966) p. 70.

I have been under the impression that meat-eating maintains bodily heat in the winter, and in cold climates. I note that vegetarians often are bothered by air conditioning, while meat-eaters are comfortable.

You have it backwards. Vegetarians maintain body heat well, while meat-eaters are continually in a more or less feverish condition.

Dr. Trall pointed out that ordinary vegetarian foods contain all the carbon and hydrogen requisite to sustain the animal (or human) heat in all climates, and under all circumstances of temperature; and if every surplus carbon or hydrogen is taken into the system, it is, of course, thrown off; and when a large amount of surplus carbon and hydrogen is taken, the labor of expelling it is attended with a feverish excitement—which, instead of warming the

body permanently, only wastes its energies, and renders it colder in the end. (Carrington, *The Natural Food of Man*.)

Carrington says, "All the conditions requisite for the due regulation of the animal" (including human) "temperature are: good digestion, free respiration, vigorous circulation, proper assimilation, and perfect depuration; in two words—*good health*." (p. 115)

Article #1: Osteoporosis: The Key To Aging by Robin Hur

Robin Hur is the author of *"Food Reform, Our Desperate Need"*

Osteoporosis, which means "porous bones," is the foundation of the entire so-called "aging" process; it produces the decrepitness of old age and it leaves in its wake a maelstrom of age-related degenerative conditions. Osteoporosis results from an insidious process of bone demineralization, which, over a period of many years, robs the bones of up to half of their original calcium content. The bones are left frail and weak, and to make matters worse, much of the lost bone calcium ends up in the walls of the blood vessels, the skin, the eyes, the joints and various internal organs.

The calcium that finds its way to the blood vessels causes hardening of the arteries; that which ends up in the skin causes wrinkling. In the joints the errant bone calcium takes the form of arthritic deposits, in the eyes it takes the form of cataracts and in the kidneys and bladder it becomes what we know as stones. Thus, osteporosis is (literally) the source of a broad range of degenerative processes.

The development of osteoporosis has now been linked to cancer, but even before the discovery of the cancer ties, gerontologists had concluded the "aging" process centers on the transfer of calcium from the hard tissues (bones) to the soft tissues (skin, arteries, joints, retina, etc.) It follows that keeping the bones intact, that is, prevent osteoporosis, is tantamount to preventing the degeneration of aging itself.

It is doubtful the bones of Westerners ever reach full maturity. It is beyond doubt, however, that at some stage of adulthood, their bone calcium begins to ebb and be carried away in the bloodstream. In time, the entire skeletal structure becomes porous, frail and weak. As members of that weakened structure, the vertebrae tend to yield to the load of the torso, so the back is wont to become crooked, compressed and painful. Such are the earmarks of osteoporosis, and with its onset, the individual tends to become stooped and normally loses inches off of his or her height. Spontaneous fractures of the vertebrae are common, as are fractures of the hips, arms, and legs. All of the bones are left vulnerable to breaks, which, when they do occur, are slow to heal.

A study at the University of Tennessee indicates that women usually develop osteoporosis following menopause but that men normally do not contract the disease until their early sixties. Other research indicates both sexes experience serious bone losses at much earlier ages.

Grim reports concerning the attrition of bone calcium in America should not be taken to mean that osteoporosis, nor for that matter what we call "aging," is unavoidable. Poor posture is the hallmark of osteoporosis, and Sula Benet describes the Abkhasians posture as "unusually erect, even unto advanced ages." Elderly Abkhasians are unbothered by spontaneous fractures, but as horsemen and mountain climbers, they do sometimes break bones and when such breaks do occur, they are wont to heal rapidly and completely, which would not be the case if they were suffering from osteoporosis.

Vilcabamba centenarians are, in Grace Halsell's words, "known to have healthy bones." Hundred-year-old Vilcabambans still work in the fields, bending the whole day, and show no ill effects. Ms. Halsell reports never having heard of an elderly Vilcabamban's having fallen and broken an arm, leg or hip. She adds that she saw not one Vilcabamban who limped or was disabled.

Other groups that manage to avoid osteoporosis include the Hunzas and Yucatan Maya. Like the Abkhasians and Vilcabambas, these groups live in traditional ways and take low-protein, primarily vegetarian diets. And from the way groups taking flesh-based diets decline with age, there is little doubt it is the diet of the Hunza, Abkhasians, et al. rather than their lifestyles, that enables them to circumvent osteoporosis.

The heavy meat eating Masai males, Eskimos, and Greenlanders apparently develop osteoporosis at very early ages. The Eskimos normally become bent, shrunken and disabled in their late 20s while Greenlanders become decrepit in their 30s. The most interesting case, however, is that of the Masai. The tribe's males spend their formative years roaming with their herds, drinking the animals' blood and milk, and eating only small amounts of plant foods. Then, at the age of 20 or so, they take off to do a two-year stint as warriors, during which time they try to live on flesh alone. Following the warrior stint, and while still in their early 20s, they migrate to the tribes' villages, arriving at the villages with bent backs, diminished heights and debilitated bodies, whereupon they are cared for by the villages' women until they die. Now here's the rub: the tribe's females, who remain in the villages while the males are out subsisting on flesh and making war, raise and eat plant foods, and remain remarkably free of osteoporosis.

Research linking osteoporosis and high-protein diets is upending the foundations of modern nutrition. In the words of Drs. Ammon Wachman and Daniel Bernstein of Harvard, "the association (of meat-based diets) with the increasing incidents of bone mass loss with age is inescapable." They go as far as to say "it might be worthwhile to consider" a diet emphasizing fruits and vegetables and only a moderate amount of milk. The head endocrinologist at the Jewish Hospital in St. Louis acknowledges that "vegetarians suffer less osteoporosis than people who eat lots of meat and have high-protein intake." The relationship between high-protein intake and loss of bone calcium was the subject of a major address before the nation's nutritionists in April. The speaker was Dr. Helen Linkswiler who, as head of the Nutrition Department at the University of Wisconsin, pioneered in protein-calcium research. Dr. Linkswiler and her colleagues are firmly convinced high-protein intake causes the bones to ebb.

Sharing that opinion are a growing number of nutritionists including two of the world's leading authorities on protein and calcium, Doris Calloway of Cal-Berkeley and Mark Hegsted of Harvard.

In the first protein-calcium studies (now just eight years old) it was found that a protein intake of 140 grams per day caused young men to lose their bone calcium at a rate of 3% of total bone mass per year. The subjects evidenced no capacity to adapt to the high protein intake, and at the rate they were losing calcium, they would have had no bones at all by their mid-fifties.

Subsequent studies showed young men experienced no bone losses when they were put on diets containing less than 50 grams of protein per day; but when their protein intake was raised to 95 grams per day, their ability to keep their bones intact depended on the amounts of calcium and phosphorus, the 95 grams of protein per day resulted in relatively small losses of bone calcium. But when the diet contained more realistic (albeit still favorable) levels of calcium and phosphorus, the 95 grams of protein per day resulted in calcium losses amounting to 2% of total body calcium per year. At that rate it would take the young men about 15 years to develop severe osteoporosis. It should be pointed out that the average protein intake of young American males exceeds 95 grams per day.

Studies with young women began only recently, and their peak protein intake was scaled down to 100 grams per day. It had been predicated that the presence of female sex hormones would protect the young women from serious bone losses, but this proved not to be the case. The young women responded to 100 grams of protein daily in essentially the same way the young men had responded to much higher intakes.

It is noteworthy that every single individual involved in one of these protein-calcium studies has responded to increased protein intake with decreased calcium retention. And, so far, all such studies have been conducted with young adults, who by virtue of their age, should be relatively resistent to bone deterioration. What is more, the reported losses were, in all cases, understated, for they took no account of sweat losses, nor did they make any allowances for any calcium that may have been deposited in soft tissues (measurements focused on what was excreted rather than what ebbed from the bones.) And with one exception, the experimental diets were fortified against loss of bone calcium through the presence of abnormally low amounts of phosphorus. Thus, the results of these studies actually tend to *understate* the effects of protein on the bones.

Phosphorus vs. Calcium

There is, of course, more to "protein foods" than just protein. Animal products are all high in phosphorus, and with the exception of dairy products, they all have very low calcium-to-phosphorus ratios. All animal products are high in chlorine and sulfur, low in manganese and magnesium, and with notable exceptions, they are high in fat and low in Vitamin C. Surprisingly, everyone of these characteristics tends to impair bone development and/or retention.

The relationship of phosphorus intake vis-a-vis calcium intake to bone development and retention has been the subject of extensive research. It has been found that when the phosphorus content of the diet is not excessive, a high calcium-to-phosphorus ratio promotes strong bones.

When, on the other hand, the phosphorus content of the diet is very high, bone deterioration is unavoidable.

High-phosphorus diets effect substantial rises in the level of phosphorus in the blood; and in what amounts to an effort to control the ratio of calcium-to-phosphorus in the blood, the body responds to a rise in blood phosphorus by removing calcium from the bones and releasing it into the bloodstream. Boosting intake of conventional calcium sources (dairy products) does nothing to alleviate the situation. Calcium absorption drops sharply when intake is elevated, so little of the added calcium actually reaches the bloodstream. Moreover, dairy products are high in phosphorus as well as calcium, and almost all of the phosphorus does get into the bloodstream. Thus the addition of dairy products to a diet already high in phosphorus may actually speed up the rate of bone deterioration.

Studies indicate the phosphorus content of typical diets is 20 to 100 percent above safe levels; moreover, calcium-to-phosphorus ratios are less than half what they should be. Meat and dairy products account for two thirds of the total phosphorus in typical diets. Eliminating just the meat would reduce total phosphorus intake to acceptable levels—it would also bring a dramatic increase in calcium-to-phosphorus ratio.

Phosphorus tends to acidify the blood. Chlorine and sulfur have the same effect, so when intake of one or more of these three minerals is excessive, the body goes in search of a buffering agent. Without some means of buffering the blood, a single overload of one or more of these minerals could cause severe acidosis, and even death. The body contains four minerals that can act as buffering agents, but only two of these, namely potassium and calcium, are available in quantity. Unfortunately, excesses of the acid-forming minerals are almost always accompanied by a rise in blood potassium levels, and since further increases in serum potassium could have dire consequences, the body tends to call upon its calcium bank (i.e., the bones) for a buffering agent.

The mechanism that initiates the removal of calcium from the bones also puts a halt on the excretion of calcium by the kidneys. The result is a rapid rise in blood calcium, which tends to bring about the deposit of calcium in the soft tissues in the form of kidney and bladder stones, arthritic deposits, etc. Thus, the acid-forming minerals are capable of triggering the entire "aging" (i.e., calcium transfer) process.

Foods that contain an excess of the acid-forming minerals (phosphorus, chlorine and sulfur) over and

above the alkaline-forming minerals (calcium, potassium, sodium and magnesium) are said to have an "acid ash." Foods that are on balance, alkaline in nature are said to have an "alkaline ash." Protein itself forms an acid ash and this may explain why high-protein intake causes the bones to give up calcium.

All so-called "protein foods," including milk, tend to acidify the blood. Without exception, they are rich in the three acid-forming minerals; moreover, all of their chlorine, and a major segment of their phosphorus, lies external to their protein. Thus, they have an acid-forming capacity which is independent of their protein. It follows that protein foods, such as beef and eggs, would be expected to cause even greater bone losses than isolated protein extracts, which served as the principle sources of protein in all but one of the aforementioned protein-calcium studies. And in the one study in which meat did serve as the protein source, calcium losses were indeed accelerated.

The addition of fruits and vegetables to the diets of young men taking 140 grams per day cut their bone calcium losses by 25 percent. Fruits and vegetables have an alkaline ash, so their addition to an acid-forming high-protein diet would tend to cut the need for bone calcium as a buffering agent.

Typical diets have a strong acid ash. The first step to alleviating this situation is to eliminate from the diet those items with really high acid ashes, namely meat, eggs, fish and poultry products. Without these, normal diets would be tolerably close to neutral and the individual would be in a position to work towards a truly good diet—which means, among other things, an alkaline ash diet.

Inactivity is still another, and possibly important, cause of skeletal erosion. Extended bed rest led to calcium losses at a rate of 6% of total bone mass per year in young men. On the other hand, exercise tends to enhance calcium retention and it has been shown that low-protein, low-fat diets boost endurance and engender spontaneous activity. High-fat, high-protein diets cut endurance and promote inactivity. It's just not a good day for the meat group.

The integrity of the bones depends on the supply of a number of minerals, including manganese and magnesium. An adequate supply of manganese enhances the strength and density of developing bones, while an adequate supply of magnesium tends to prevent bone calcium from ending up in the kidneys and bladder as stones.

Ironically, cow's milk is used to induce both manganese and magnesium deficiencies in animals.

Manganese-deficient milk left young rabbits with bowing front legs and a bone structure that was weak and porous. Magnesium-deficient low-fat milk induced kidney stones in 97 percent of a group of rats; it can offer no solace to milk drinkers that researchers believe the protein in milk played a role in the stone formation. In all fairness, though, it should be pointed out that milk is not the only dietary item that is low in manganese and magnesium: all animal products are markedly low in both minerals; in fact, the entire American diet is dreadfully low in both.

High-fat intake tends to inhibit calcium absorption through the formation of insoluble calcium compounds of the gut. Calcium absorption is aided by the presence of Vitamin C which tends to keep calcium in an absorbable state. It hardly needs pointing out that animal products are grossly high in fat and scurvy-low in Vitamin C.

The ties between animal products and the entire "aging" process (i.e., the transfer of calcium from the bones to the soft tissues), and osteoporosis in particular, make the cornerstone of the "four basic food groups" look like a tombstone. To recoup, *normal diets contain enough protein to produce rapid bone losses, even among young adults*. They also contain enough phosphorus to cause debilitating bone deterioration; and they have a calcium-to-phosphorus ratio that would be expected to both thwart bone development and speed deterioration. Normal diets have an acid ash capable of producing both bone deterioration arid the accumulation of calcium in the soft tissues:

Animal products are the principle source of the protein, the phosphorus, the low calcium-to-phosphorus ratio, and the acid ash in normal diets. What is more, animal products tend to effect bone-degenerating inactivity and deficiencies of bone formation-dependent manganese and stone-preventing magnesium.

On top of this, animal products are very low in Vitamin C, which aids calcium absorption, and overloaded with fat, which inhibits calcium absorption. It's a one-sided picture, but it's a one-sided scene—and it bears a message of hope.

We don't have to face advanced age as less than skeletons of our former selves. It is clear, though, that walking tall and, painlessly into the years ahead requires our abstaining from meat, eggs, poultry and fish. Little is to be gained by switches to meat substitutes, synthetic eggs, etc.—we need to get away from the protein, the fat, the phosphorus and the acid ash, not simply take them in "vegetable" form.

We do need a good source of calcium in the diet, but we don't need milk. Milk is, after all, merely a substitute, and a poor one, for dark green leafy vegetables. Collards, parsley, turnip greens, watercress, kale, mustard, spinach, etc. provide twice as much calcium as milk and yet they contain considerably less phosphorus. They have calcium-to-phosphorus ratios three to four times that to milk. And unlike milk, greens have a strong alkaline ash; what is more, they are excellent sources of manganese, magnesium, and Vitamin C. They are also free of the troublesome protein, fat and cholesterol of milk. As for the problem of excess protein, replacing the milk and cheese with a few ounces of greens (which is all that is necessary) would cut protein intake by 10-15 grams per day.

A few greens, including spinach, are high in oxalic acid, which may reduce the availability of their calcium. It is advisable to include at least one oxalate-free green (see earlier lessons on oxalic acid and which vegetables contain it and/or other irritant properties) in the diet, but there is no reason to avoid these vegetables *completely*. Vegetables are best taken raw, of course. Take them in salads, or enjoy their company and taste right in the garden.

We are going to hear a good deal more about osteoporosis during the next few years. The protein-calcium studies have upended the foundations of modern nutrition. Critics simply can't find any loopholes in the results. No exceptions. No extenuating circumstances. No inconsistencies. In the words of one of the nation's best known nutritionists: "I now realize we know almost nothing...." She went on to extol dark green leafy vegetables, leaving the impression they were a new thing to her.

It's happening. Meanwhile don't be fooled by claims you need a "protein source." Stick with the juices, fruits, greens and sprouts; they'll keep your bones intact, your soft tissues soft and your years without worry.

Article #2: Vegetarian Mother's Milk Safer

The breast milk of vegetarian women is significantly safer than that of meat-eating women, according to a study conducted by the Washington-based Environmental Defense Fund (EDF).

Last June, government and university researchers testified before a senate subcommittee that it is difficult, if not impossible, to find safe milk for new-born infants anywhere in the world. The researchers cited an Environmental Protection Agency (EPA) study conducted in 1975 which indicated that 99% of breast milk samples taken from more than 1,400 nursing mothers in 46 states, were contaminated with pesticides, such as Dieldrin and DDT, and other industrial compounds such as polychlorinated biphenyls (PCBs).

PCBs are suspected carcinogens, and in low doses can cause sterility in animals. They are now widespread in the environment, because of accidental spills and deliberate, covert dumping of the chemicals into public water supplies.

For instance, a number of factories along the Hudson River have for years been circumventing state

water purity laws by processing PCBs, benzene, chloroform, and other chemicals through municipal sewage treatment plants— despite the fact that such plants are incapable of filtering out toxic chemicals before dumping the water into the river.

This fall (however), the EDF tested breast milk samples from 50 predominantly vegetarian women, and found that the levels of pesticides such as DDT in their milk were only 1/3 to 1/2 those of mothers eating a conventional diet.

The levels of PCBs, however, were only slightly reduced from the average breast milk concentration of 1.8 parts per million—10 times higher than the maximum amount considered "safe" for babies.

The women chosen for the study ate milk and dairy products as well as fruit, grains, and vegetables, and a few ate fish as often as once a week.

The EDF researchers say they cannot explain why not eating meat should make such a difference in the pesticide levels of nursing mothers. They suggest that it's probably that vegetarians eat more organically grown foods (foods grown without pesticides) than do most carnivores.

The foregoing article and headline (with a rather sensational sub-heading, "Meateaters Breast Milk Laced with Pesticides") was found in a recent Earth Watch section of New Age Magazine.

It may be that some vegetarians eat more organically grown food, but this is a lame explanation for the reduced levels of pesticides as noted. In the last issue of VV, Nat Altman noted that dairy products contain "only about 2/5 the pesticide residues as (compared to) red-meat, fish, and poultry. Oils, vegetable fats, and leafy vegetables contain about 1/7 as much; fruits and legumes are about 1/8 as much; and the figure for grains and cereals is only 1/24 the pesticide residues found in meat."

This is due to the concentrating factor as the contaminant goes through the additional link in the ecological chain; that is to say, an animal (or human) is likely to concentrate the pollutant in its body; it may also dispose of some of it in milk. Actual tests in Britain have shown the pesticide residue level in humans to be highest in. meat-eaters, lower in lacto-vegetarians, and lowest in total-vegetarians. It is very likely that the PCB levels would follow a similar pattern, as PCBs are not just industrial pollutants but are largely produced by the breakdown over the years, of DDT in the soil and environment.

Given the many proven advantages of breast-feeding by a healthy human mother, we do not feel that vegetarians should be stampeded into forsaking this practice that is so potentially beneficial for both mother and baby. Considering that the pesticide (and probably PCB) level of vegetable-source foods is such a small fraction compared to that of even the dairy products, it may well be considered by even lacto-veg. mothers to substitute leafy greens and other rich sources of nutriment, for dairy products, at least during pregnancy and lactation. Also, we cannot refrain from commenting that even eating fish "as often as once a week" could easily be a factor in keeping PCB levels up.

Article #3: Booklet Review - Meat And The Vegetarian Concept, Part I

This review concerns the 20-page pamphlet, *Meat and the Vegetarian Concept*, published by the National Livestock and Meat Board.

Intended to refute various aspects of meatless diets, it has been circulated extensively to educators, nutritionists, media people, and other individuals throughout the USA.

The text itself is carefully written and attractively presented, and at first glance seems to offer very

convincing arguments in favor of eating meat.

However, a careful reading reveals a plethora of inaccurate and incomplete data, outright distortion of fact, and even the tendency to create an argument where none, in fact, exists.

Because of the extensive distribution of this pamphlet and the highly misleading statements it contains, NAVS feels that a swift and factual response is warranted.

As the pamphlet takes a rather disorganized "shotgun" approach, a point-by-point analysis would be impractical. However, NAVS has requested 3 well-known vegetarians active in the movement to comment extensively on the main points, making full use of documented material from non-vegetarian as well as vegetarian sources.

The three are: Nathanial Altman (author of *Eating For Life*; NAVS board member); Robert Pinkus (director of Metropolitan Veg. Assn.); and H. Jay Dinshah (Pres. of NAVS).

NAT—Very often, meat industry spokespeople, such as the National Livestock and Meat Board, find it in their interest to classify vegetarians along with those few enthusiasts of the radical and nutritional unsound "Zen macrobiotic #7 diet," which calls for the consumption of only brown rice. It should be made clear that macrobiotics and vegetarianism are not the same, as many macrobiotic diets involve the liberal consumption of seafood, such as fish, clams, shrimp and other crustaceans. In addition, certain vegetables such as eggplant are enjoyed by vegetarians but frowned upon by macrobiotic enthusiasts as "poison." Fruit and salads are also generally avoided.

Thus, it is absolutely necessary to define our terms: Vegetarians do not eat the meat of domestic or other animals, whether it is beef, pork, veal, lamb, poultry, fish or other "sea food." Most vegetarians—perhaps 90-95%—are either lacto or lacto-ovo vegetarians, eating such foods as eggs and/or dairy products in addition to plant foods. A small percentage of vegetarians—called "total vegetarians"—abstain from animal foods altogether, and consume only plant-source foods, such as grains, legumes, nuts seeds, fruits, and vegetables. "Vegans" are total vegetarians who also refuse to use nonfood animal products, such as leather, furs, silk, wool, and soon.

BOB—In his forward to this pamphlet, NLSMB President David Stroud (whose commercial interest in promoting meat-eating seems obvious) sets a very low tone in trying to equate vegetarianism with some vague and unspecified "commercial interest"; with "food fadism and nutrition quackery, higher grocery bills and complicated meal planning," as well as potential poor nutrition. *All of which could hardly be further front the truth*.

While commercial interests have always abounded in human endeavors, seldom have they been less important as motivations (when they exist at all) than in today's vegetarian movement, either with the average vegetarian or the more outspoken vegetarian advocates.

As we get deeper into this curious pamphlet, we shall soon see where the label of "nutrition quackery" rightly belongs.

A considerable saving can be expected on grocery bills for persons changing from a meat-based diet to a well-planned nonmeat diet, as noted briefly in *Facts of Vegetarianism* (10-cent booklet from NAVS).

Meal planning can, if anything, become much simpler, although with the tremendously increased available variety of natural non-animal foods that many newcomers to vegetarian living seem to "discover" for the first time in their lives, it often happens that one soon discovers that vegetarian dining can also be more fun and much more delicious.

VEGETARIAN VOICE—On page 6, the NLSMB dismisses, in a single paragraph, religious reasons for abstaining from certain or all types of meats, calling these "religious taboos." Is the characterization fair and is it accurate?

BOB—The pamphlet cites Hindus, Moslems and Jews, and 7th-Day Adventists, in regard to opposition to some or all types of meat. Conveniently omitted are such groups as Trappist and Benedictine monks,

Jains, Buddhists, Essenes, and others who at various times in history help to fill out the picture of widespread partial abstention or outright injunction against flesh eating.

JAY—First, I would point out that "poor sanitation" in meat handling is hardly limited to Biblical times or the Middle or Far East as this paragraph implies: indeed, it does not seem to be altogether unknown even nowadays.

We may sympathize with the embarrassed reluctance of the NLSMB to go into further detail about the shellfish, the swine, the vulture, etc., said to be stamped "unclean" and declared by their own Creator to be unfit for human consumption (even under the more liberal demands for flesh-eating raised by erring humanity); this was clearly due to their being much less fastidious in their dietary habits—i.e., the consuming of river sewage, the omnivorous scavenging of fecal matter or carrion—than the vegetarian creatures in general. (See Deuteronomy 14:3-21; also see Genesis 1:29-30.)

Doubtless, many of our friends in the movement who happen to be 7th-Day Adventists, will be surprised to be singled out and to learn that their reason for not eating meat is supposed to be "as an expression of their religious devotion."

I commend to you the chapter on Flesh As Food, including, "Reasons for Discarding Flesh Foods," in *The Ministry of Healing*, by Ellen G. White: the reader may judge whether the health reasons for vegetarianism presented so eloquently therein are mere superstitions or "religious taboos." But it will be crystal clear why the meat promoters may wish the public to think so, especially when one considers the long and illustrious tradition of SDA researchers, dieticians, and M.D.'s in documenting and publicizing the superiority of vegetarian living, purely from the secular standpoint of better health and longevity.

In a recent year, the livestock feed production alone in the U.S. was 165 million tons, not including the wheat consumed by animals. One half of the total of all U.S. crops are fed to animals, including 86% of corn, oats, and barley, 90% of the non-exported soybeans, and 42% of the wheat Americans consume, for an overall consumption picture of 78% of all U.S. grains going to feed animals.

Nor does this include the huge areas of land misused for grazing purposes. And all this is IN ADDITION to any molasses-soaked old newspaper, silage, excrement, or whatever else they now call "recycled" feed, either experimentally or commercially.

JAY—Obviously, the 3:1 ratio cited in the NLSMB booklet refers to the very "best" meat producer—the chicken—although all fowl and fish are conveniently omitted when the board wants to convince Americans that they aren't eating enough meat (p. 10). We are not going to say that the use of a 3:1 figure is a deliberate attempt to distort the facts; an alternative explanation would be that the experts of the National Livestock and Meat Board just don't know the difference between a chicken and a steer, and hope the public will be just as much in the dark. So it might be an honest mistake.

Of course, it is not just vegetarians who are drawing the public's attention to "preposterous stories" of the waste of grain in feeding food animals. But it is the practice, not the stories, that we find preposterous. The figures that Nat and Bob gave are corroborated in the special section on the "World Food Crisis" in the Nov. 11, 1974, Time magazine. It notes the 400 lbs. of grain eaten by a person in a year in a poor country versus an American consuming "five times that amount, mostly in the form of grain-fed beef, pork and chicken. The industrial world's way of eating is an extremely inefficient use of resources. *For every pound of beef consumed, a steer has gobbled up 20 lbs. of grain*. Harvard nutritionist Jean Mayer notes that "the same amount of food that is feeding 210 million Americans would feed 1.5 billion Chinese on an average Chinese diet." This is a food ratio of 7:1, and it would be much worse but for the fact that "meat-eaters" do not eat only meat, but rather a mixed diet, and this helps keep the ratio down to "only" 7-to-l in this case.

The booklet does seem to confuse the protein-conversion ratio with the grain-to-meat conversion ratio, which is obviously not quite the same thing. In the 20 lbs. of grain cited by Time magazine, there might run, say, 2'/i lbs. of protein (about 1/8). In the single pound of beef produced, it might run around 1/6 lb. of protein. So the actual protein conversion ratio (grain:beef) would run about 15:1, close enough to the

17:1 cited by Nat (allowing for reasonable variables), but five is as great as the meat propagandists would have us think, by their literary legerdemain of just lumping everything together as "meat" and claiming the greatest "efficiency" as if it represented an average. I feel we have every right to "beef" about this figures finagling, because that's just too much bull to hide behind a little chicken.

Averaging out the food waste factors on the various types of meat—even including fowl—in the quantities actually consumed, you would probably come up with a rule-of-thumb average in the vicinity of that of Prof. Isaac Asimov's estimated 90% waste, or 10:1 ratio overall (see "Our Wasted Land" in *Facts of Vegetarianism*, published by NAVS). You know, Dr. Asimov is a noted science writer, who is also in the top ranks of science-fiction authors. He used to be my favorite in the latter field until recently. But now I eagerly await further literary efforts of the NLSMB, as I find their creative style of subtly blending science with fantasy to be so much more imaginative and entertaining than even that of Dr. Asimov, providing one does not take them too seriously, of course.

In all candor, though, I must admit that we vegetarians must be stronger of conscience than of stomach. Personally, I don't think I would have the guts to stand right up and look down on a starving sister or brother and say right out that I have "only" three lbs., or 10lbs., or 20lbs. of food, but I'd rather throw it to the pigs or the cows than share it with a human being. I don't think I could bring myself to brag about the efficiency of "only" throwing two chapatties out of three into the dung-heap. It really takes a rare kind of cool to pour water from your overflowing canteen onto the desert sand in front of a fellow human dying of thirst. It really must have taken a lot of nerve for the NLSMB to make a statement like that.

This kind of machismo, we can all live without. But the real question is: can this hungry world live with it?

Article #4: Booklet Review - Meat And The Vegetarian Concept, Part II

—continued from previous issue. Comments by Nat Altman, Bob Pinkus, and H. Jay Dinshah.

VV—On Page 7, the booklet (published by the National Livestock and Meat Board) claims that "the biological quality of protein found in animal foods is superior to that in vegetables" and implies quite strongly that vegetarianism is a major reason for people in developing nations suffering "rampant malnutrition—stunted growth, small brain development, and the disease kwashiorkor...."

NAT—What was omitted was the fact that there is absolutely no connection between "rampant malnutrition" etc., and a Vegetarian diet. The basic factors in malnutrition are either lack of the availability of nutritious vegetarian food or inadequate knowledge of nutrition.

Nutritional studies on the Hunzas, the Otami Indians in Central Mexico, the "old men in Vilcabamba," Ecuador, certain tribespeople of South Africa, young girls in Appalachia, and other people in various parts of the world, all showed that one doesn't need meat to ensure an adequate intake pf protein, calories, fat, and essential vitamins and minerals.

The booklet also failed to note the well-known fact that the biological quality of those plant proteins that are low in specific amino acids dramatically improves when combined with other plant-source foods, such as rice and legumes, or/grains and legumes. Most predominantly vegetarian people have been habitually combining these foods for thousands of years, and have enjoyed sound nutrition and excellent health.

The argument that because animal protein is much closer to that of the human body makes it preferable to plant protein is absurd. If this were true, all animals would be carnivorous if such a bizarre criterion needed to be met.

JAY—Worse than that, Nat; it's a powerful argument for universal cannibalism. What could be closer to human flesh than human flesh?

But this whole scare about protein is pretty much of a red herring. It is most inaccurate to make a blanket statement that animal protein is superior to vegetable protein. They talk about "vegetables" as if vegetarians only ate carrots and turnips. Nuts and seeds generally have protein of roughly equivalent biological value to meat, and in greater proportion than in meats generally. Muscle meat is "deficient" compared to organ meat. And even leafy greens have a moderate proportion of protein of very high biological value. Nor does the term "incomplete" mean a protein is valueless by itself; only that even a single essential amino acid is a percentage point or more less than an arbitrary dividing line of 60% (for adults) or 70% (for children) of what is considered an ideal balance. The difference between a "complete" protein and an "incomplete" protein is not—as some would like us to believe—the difference between 100% and zero: it is often so marginal as to be meaningless for any practical relationship to the actual needs of the human body.

Nor is it even necessary that all the essential amino acids be present in the same meal (let alone the same food), as the body recycles amino acids from dying cells and maintains, in effect, a pool of amino acids. (See p. 383 of *Laurel's Kitchen*.) For further information on vegetable proteins and their complete adequacy, see The Protein Problem, The Happy Truth About Protein, About Protein (in *Facts of Vegetarianism*), and the Vegetarianism special supplement to Life and Health magazine, all available from NAVS.

As for their view of malnutrition, they seem to just throw in "a deficiency of calories" as if it were a separate problem from the better-publicized protein deficiency. Actually, the former usually accompanies the latter, as it is a matter of just too little food available (see p. 385, Laurel's Kitchen), a fact the meat people seem understandably anxious to obscure.

This reminds me of old Calvin Coolidge's sage observation that when a lot of people were out of work, the result was unemployment. The NLSMB wants us all to know that when people are too impoverished to obtain *enough* vegetarian food, the result is malnutrition and starvation. But as we shall see, their "solutions" to such human difficulties seem more in line with the naive advice given by another historic figure, Marie Antoinette.

VV—On page 6 of the booklet, it is claimed that the conversion ratio is 3:1 for vegetable protein to animal protein in raising animals for food, and that much of the protein for feeding animals is obtained by recycling otherwise inedible "wastes" for feed.

NAT—Actually, the demand for meat in the USA contributes markedly to rampant malnutrition in the developing countries. *Despite a world food deficit of over ten million tons, over 580 million tons of grains were fed to livestock in a recent year.* In the U.S. alone, approximately 87% of all the corn, oats, barley, and grain sorghum crops are fed to livestock, not directly to people.

In converting this high-protein feed into meat protein, the productivity rate is far different from the 3:1 ratio claimed.

According to the June 6, 1968, issue of Chemical Industry it takes 1250 lbs. of plant protein to produce 75 lbs. of beef protein, an efficiency factor of just 6%, or a ratio of 17:1. The corresponding efficiency factor for lamb is 9% (11:1); for pork, 15% (6 2/3-to-l); while the most "efficient" protein converter is chicken, and even that only yields 2.5 lbs. of protein for every 8 lbs. of plant protein consumed, a factor of 32%, or a little less than 3:1. Something they do not mention is another serious barrier to good nutrition in developing nations. It is a well-known fact that many of the developing countries are utilizing their best land for cattle raising for export to the USA, instead of using this land for growing staple crops which could feed their hungry people.

In Guatemala, for example, where 75% of the children under five years of age are malnourished, nearly 23 million pounds of meat were sent to the USA from January to November 1976 (Foreign Ag. Calendar, USDA, of Dec. 1976). At present, Guatemala has a shortage of low-priced corn and beans, the staple foods of the peasant population.

BOB—The meat people admit that the ratio for protein conversion is "only about 3:1." Even if true, what would be moral about even that ratio, in a world in which each year millions of humans die of diseases related to malnutrition?

A fact ignored by the booklet is that in a country such as India, the average person can only get about 400 pounds of grain per year, but can live by eating it instead of feeding it to animals. In America, the average meat-eater consumes 2000 lbs. of grain per year, but only 150 lbs. direct and the rest second-hand through animal products.

Article #5: Scientific Vegetarian Nutrition

(NAVS Western Coordinator and Board Member Dixie Mahy reports on a 2-day class presented by Dr. Aly at the 23rd World Vegetarian Congress....)

Although a qualified medical doctor Dr. Aly utilizes vegetarian diet, fasting, and non-drug therapy. He stated that scientific thought is just now coming to favor vegetarianism, and that early scientific errors have been made which have taken a long time to correct.

Error #1) Scientists thought that since protein was the most important nutriment in the body for growth and repair, and that since animals were rather similar in construction to humans, meat was therefore the best food for the human body.

The error was that they did not realize that the body can build up its own human protein from proteinaceous food sources within the vegetable kingdom.

Error #2) Scientists thought that by refining carbohydrates—which the body needs for energy—it would make them easier to assimilate, e.g.: pure white sugar, white flour, polished rice, etc.

The error was that, most unfortunately, the vitamins, minerals, and enzymes are largely destroyed in refining, processing, or even in long cooking; and the body needs these nutriments.

Error #3) Scientists thought the body needed more dietary fat than it actually does, and began recommending too much in the diet.

The error was that, although the body needs fats, it gets an excessive amount of saturated fats as a result of high meat intake and saturated oils as a result of processing.

The Protein Myth

Dr. Aly discussed more fully the "protein myth" perpetrated by western scientists, who made two major errors on protein: As previously noted, proteins from the vegetable kingdom were considered inferior; and the protein minimum daily requirement was set at a figure far too high for the body's actual requirements. (In addition, it should be noted, the RECOMMENDED daily amount was arbitrarily set at DOUBLE the supposed minimum amount proven adequate, -ed.)

In the East, the question was, "How little protein do we need?" But in the West, the question was "How much protein do we need?" Scientists are now starting to slowly correct their mistakes. Ironically, for

example, they once recommended the optimum "to make sure" but today modern scientists recommend the minimum of before (1/2 the former *recommendation*) as the optimum of today.

Dr. Aly went on to state that meat is not a good energy source as it is not easily combusted and needs several enzymatic processes to metabolize, with lots of waste products, nitrogen waste, uric acid, and urea, which the body disposes of with difficulty. Waste from protein cannot be disposed of so easily as waste from carbohydrate. (Consider that carbohydrate breaks down easily with water, h3O, as a waste product which the body can easily get rid of through perspiration, or via the lungs or kidneys.) On the other hand, the kidneys are the only way of eliminating protein waste. When there is an overload, material is stored in all connective tissues, etc., throughout the body. This overload along with no exercise, will eventually destroy the kidneys and/or the heart.

The Circulatory System

Dr. Aly cited new scientific findings showing that the walls of capillaries are destroyed by waste products from protein and excessive protein which is stored there. These studies were made by Prof. Lother Wendt of the University in Frankfurt, Germany. (Unfortunately, these studies are only available in German at this time—a language spoken fluently by Dr. Aly—but hopefully they will be translated for American scientists, doctors, and nutritionists.)

Dr. Aly went into great detail showing how important the circulatory system is for good health, and how the combination of saturated fats and too much animal protein causes many diseases not usually thought of as being directly associated with it. The arteries, veins, and capillaries carry the nutriments and oxygen for all the cells of the body. Every cell is dependent on this circulatory system for its nourishment.

All waste products from the metabolic process are returned to the blood vessels to be eliminated from the body. Thus, good circulation is essential! The walls of the blood vessels need to be elastic, thin, permeable. When excess fats and amino acids are deposited on the walls of the blood vessels, the walls become thick, inelastic, and impermeable.

When the passageways become narrowed, occlusions can occur causing (for example) a coronary of the heart. Another less known effect, however, is the above-mentioned interference with cell metabolism. When the long chains of amino acids from animal protein along with saturated fats catch on the small pores of the walls of the blood vessels—especially the capillaries—the surrounding cells become undernourished.

Normally, the capillary walls should be 300 angstroms thick (an angstrom is a unit equal to 1/100,000,000 of a centimenter). If the walls become thicker, 500 to 1000 angstroms, nutriments and oxygen are unable to get to the cells adequately and waste products cannot get out. Even diseases such as cancer may be caused by this clogging of the vessels as these cells deteriorate and become susceptible to numerous diseases. There is also the theory that the body has to raise the pressure to force the blood through the clogged vessels, in order to get nutriments to the cells. Again, perfect circulation is essential to perfect health!

Dr. Aly feels that a person would be much less likely to get excessive amounts of protein from vegetable sources. Protein in general in the vegetable kingdom is not so highly concentrated as animal protein is, and he views this as a desirable feature rather than undesirable as was formerly thought. The body can make up its proteins provided the essential amino acids are present. He believes in complimentary proteins such as beans and corn, and felt that a vegetarian diet containing a variety of foods is adequate for promoting and maintaining good health. (It is also now known that so-called "complete" proteins are also widespread in the vegetable kingdom, as in most nuts and seeds, and leafy greens. Even "incomplete" proteins may often rank a mere few percentage points lower than an arbitrary dividing line, in one or two of the essential amino acids and thus be stigmatized as theoretically inferior—yet it is quite possible to utilize even such erroneously-classified "incomplete" protein foods as the only

concentrated protein sources, without resorting to combinations at all. -ed.)

Dr. Aly did not feel that protein concentrates as a supplement are necessary in a balanced vegetarian diet.

Harmful Effects Of Salt

Dr. Aly discussed the overuse of salt in the diet and its consequences. Natural sodium is needed in the body only in small quantities, one to five grams. Sodium is found naturally in foods, so one can live well without adding inorganic table salt to food at all. (See: chapter on *Salt Eating* in Dr. Shelton's Vol. 11, chapter on *Salt is Poisonous*, in his Superior Nutrition, and Lesson 29 on eliminating condiments from the diet.)

Table salt (sodium chloride) causes osmotic changes in the blood. The tissues fill with fluids and then must be cleaned out through the kidneys and skin. At Dr. Aly's clinic, he puts his patients on a modified fast, giving them fluids, juices, and water to get rid of the sodium chloride. (He prescribes an alkaline vegetable juice program—e.g. carrot juice—rather than a plain water-fast, as he feels the juice counteracts acidity.) Too much salt overtaxes the kidneys. Regular doctors give their patients diuretics which take fluid and salt away, but are harmful as they also take away essential minerals.

Salt causes more fluid in the blood vessels, and the body tries to force elimination of the fluid to get rid of the salt. The combination of salt, animal protein, and saturated fats—all so typical of the average American diet—forces the blood pressure to rise.

Intestinal Flora

Dr. Aly discussed the importance of the intestinal flora in the lower intestines. Lactobacillus acidophilus is necessary in the intestines to help digest, food and to produce vitamins B12 and K.

The intestinal walls serve an important function in acting as "traffic police" to prevent poisons from passing into the body. He felt that allergies are caused by the loss of the flora in the intestines and poisons getting into the blood. He emphasized the beneficial effects of eating raw foods as they have their own enzymes for digestion, and these are destroyed by cooking. That is one reason why *more* food is needed when it is cooked.

He felt that a high-protein diet is not necessary if one has good intestinal flora. He cited the study of New Guineans of Mt. Hagen, who are very healthy people although they eat 15 to 20 grams of vegetable protein a day (compared to current recommendations of 45 to 55 grams for the average adult female and male). Amazingly, these New Guineans put out far more nitrogen than could be accounted for with their meager protein intake. Dr. Aly felt that they must have good flora and are producing their own protein.

Dr. Aly does not recommend such a small amount of protein for most people, as there are so many things in modern society that interfere with good intestinal flora. He felt, for example, that the artificial fertilizers have depleted the trace minerals in the soil, which are therefore deficient in the fruits and vegetables. Organic manure, for example, would be better; and bacteria in the soil would be just as necessary as in the intestines. He also felt that pesticides, artifical colorings, etc., are all carcinogenic, allergenic, and harmful to the health although they make things look good and sell better. He believes that additives destroy the natural intestinal flora.

Regarding vitamin pills, his view is that they contain what scientists know, but not what has not yet been discovered; and that the natural fruits and vegetables in a fresh state and organically grown if possible, are more desirable. He recommended that a strict total-vegetarian (using no dairy foods or eggs) eat three to five grams of parsley every day, as it helps the intestinal flora (which in turn produce vitamin B2).

Superiority Of Natural Unrefined Foods

Dr. Aly went into great detail regarding the superiority of natural unrefined foods. He cited studies by Prof. Burkitt, and the English studies by Cleave and Campbell, the Saccharine Diseases, which state that most diseases arise from abuse of refined products. They say that essentially the diseases are different symptoms of the same problem.

Dr. Aly demonstrated what occurs through the refining of a grain of wheat, for example. This takes away the vitamin E, essential fatty acids, trace minerals, the wheat germ, and an essence that scientists do not as yet know about. What remains is mainly carbohydrate. He asserted that scientists know about elements, but they do not know about the essence of life itself. Putting a few of the known synthesized vitamins back into the refined flour cannot make it equal to the original whole grain. Although scientists could even copy the wheat grain exactly as they know its component parts, it still would not grow. Yet grains found in tombs 4000 years old will still grow. There is a life essence locked in, which scientists do not know how to reproduce. That essence is destroyed by refining. (He added that grains can be stored in dry tins if kept cold and dark, but they will not store well after they are ground.)

Nutritional Disaster Of Refined Sugar

Dr. Aly was adamant that if white sugar were banned, everyone's health would improve. He explained, that there is a constant blood sugar level of 80mg in the blood, needed for muscles and organs. When white sugar is eaten and gets into the blood, it gives a high blood-sugar level of 150 to 200. Low blood sugar is bad—no energy—but the body has no use for high blood sugar either. The body takes it and stores it as fat. If an apple or an orange or an unrefined carbohydrate is eaten, it takes a longer time to get the sugar and energy; thus there is a normal rise in the blood sugar level. When refined sugar is eaten, it gets into the blood stream quickly, and the blood sugar level becomes too high; insulin is then secreted to break down the sugar and store it in the body as glycogen. Then the blood sugar drops below normal level, and there is a feeling of a lack of energy.

If a lot of refined sugar is eaten, the pancreas is overworked. People who eat refined sugars for "quick energy" are taxing their systems and not really getting lasting energy, because the body will over-react and drop the blood sugar level below normal, and they will then have less energy than before. Unrefined carbohydrates will provide an even, long-term energy level, and not the "yo-yo" effect of extreme high followed by extreme low.

Although honey, maple syrup, blackstrap molasses, dates and other dried fruits are in varying degrees better than white sugar as they have other nutriments, they too will cause high blood sugar if too much is eaten, as they are highly concentrated though not refined. (It is often recommended to soak dried fruit in pure water overnight, to reconstitute it in fluid content and reduce the sugar concentration, -ed.) He also felt that too much of fruit juices would not be good as the sugar gets into the bloodstream too quickly, and that it would be better to eat fresh fruit.

In summing up, the best diet for good health would be a balanced vegetarian diet containing a variety of (if possible) organically-grown fresh fruits and vegetables, whole grains, nuts and seeds, and dairy products if desired.

Reprinted from the *Vegetarian Voice*, September/October and November/December 1976.

Article #12: What's Wrong With Your T-Bone Steak? by Alvin E. Adams, M.D.

Flesh food in the diet is an important cause of disease and death among humans. Meat, Fish and poultry transmit bacterial and parasitic infections to man. Pesticides, antibodies, and hormones find access to our bodies through the meat we eat. Also, flesh foods, by their very nature, are harmful to human health because of the effects that cholesterol, animal fat, blood, and lack of fiber have on various body systems.

Meat Lacks Fiber

Flesh foods lack natural fiber found so abundantly in whole grains, fruits, and vegetables. Fiber is composed of cellulose. It is indigestible and therefore adds bulk and moisture to the stool. A high meat diet is low in residue-containing foods resulting in constipation with hard and infrequent stools. This in turn often results in the development of hemorrhoids.

Straining and increased tension in the smooth muscle of the colon wall are thought to be the cause of diverticulosis. The pouches of diverticulosis often become impacted with fecal material and may become infected resulting in abdominal pain. Diverticuli occasionally perforate or hemorrhage, requiring emergency surgery.

Meat Is Suspect In Cancer

Meat in the diet is now suspected by many scientists to be a major cause of cancer of the colon. With a high meat diet the transit time of food through the gastrointestinal system is prolonged. Waste matter which should be eliminated promptly remains in contact with the rectal tissue for long periods of time. Cancer-causing compounds may be formed by chemical reactions or as byproducts of bacterial metabolism. These chemicals may initiate cancer in the colon wall. Cancer is the number two killer in the U.S., and colon cancer is the most common cause of cancer deaths. Seventy-five percent of all colon cancers occur within the last six inches of the colon where feces are stored.

Meat Is High In Saturated Fats

The fat found in dairy products and all animals except fish is highly saturated. Saturated fats in the diet tend to raise the blood cholesterol and accelerate the development of hardening of the arteries by the process of arteriosclerosis. Wherever an artery becomes completely clogged because of this pathologic process, a disaster occurs in the tissue beyond the point of obstruction. A blocked cerebral artery results in a stroke, an obstructed artery in a leg may lead to gangrene, and an obstructed coronary artery results in a heart attack. Heart attacks and strokes are the number one and number three killers in this country but are only minor causes of death in countries where there is little or no meat in the diet.

Blood In Meat Can Be Harmful

The blood remaining in meat can be a source of potentially harmful compounds. The blood is the vehicle which carries waste products from the site of their formation to the organ of elimination or metabolism. The bloodstream carries carbon dioxide to the lungs for removal from the system, and it carries other waste products such as urea, uric acid, and creatine to the kidneys for elimination from the body. The blood, also, distributes hormones from the site of production to target organs. Blood in the meat you eat contains the waste products of the slaughtered animal. The removal or metabolism of these chemicals places an extra work load on your liver and kidneys. If the animal was in a state of excitement or fear when it was slaughtered, animal adrenalin and other hormones never reach their target organs but remain in the meat only to have an effect upon you as you eat your blood rare steak.

Meat Contains Pesticides

Many pesticides are fat soluble chemical compounds which are accumulated and stored in animal fat. After eating feed sprayed with pesticides, surprisingly high levels of these complex hydrocarbons are found concentrated in choice-cuts of meat. It has been estimated that 80% of the pesticides which find their way into the human diet come from the meat we eat.

Meat Has Hormones

Hormones and antibodies administered to animals to force growth and prevent disease are metabolized fairly rapidly by the animal. Frequently, however, animals are slaughtered before the drugs have been cleared from the animals' systems, and humans are exposed unnecessarily to these compounds. Until recently, D.E.S. (Diethylstilbestrol) was mixed with feed to promote rapid growth and development in animals. Women who have taken this drug during pregnancy are likely to have boys who are sterile or girls who are susceptible to genital tract cancer. Residues of D.E.S. were frequently found in meat while its use was authorized by the F.D.A.

Meat Has Bacteria And Parasites

Outbreaks of Staphylococcal Enteritis, Shigella Dysentery, and Salmonella often have been traced to meat dishes improperly prepared or preserved. Oysters and shellfish taken from waters contaminated with human waste are a significant cause of Infectious Hepatitis.

Parasitic infections frequently are traced to a flesh food diet. Tapeworms are found in beef, pork and fish. Tapeworm infestations result in chronic disability, weakness, and anemia. Trichinosis is the most important parasitic disease transported by meat in the U.S. THIS COUNTRY HAS THE DUBIOUS DISTINCTION OF LEADING THE WORLD IN TRICHINOSIS. We have approximately three times as much trichinosis as all the rest of the world. About 16% of all adults in the U.S. are found to have trichinosis at autopsy. A heavy infection of trichinosis may cause death, but more often the only manifestations of trichinosis are chronic aches and pains which usually are passed off as a rheumatism or arthritis. Unfortunately, there is NO CURE for trichinosis.

Proper cooking can kill the parasites and bacteria found in meat but when meat, poultry, and seafood are eaten raw or only have a brief exposure to heat, one is inviting bacterial or parasitic disease.

Good Health Requires Effort

If flesh foods were eliminated from the diet, there would be a significant decrease in the disease, disability, and death which result from the conditions that have been discussed herein. Good health is not an accident; it must be pursued with diligent effort. It results from adhering to a healthful diet, avoiding all that is harmful to health and using moderately those things which promote it. Eliminating or reducing flesh foods from the diet is a step toward better health.

Article #13: Fishitarian Or Vegetarian? The Difference Might Be Fatal! by Bob Pinkus

A lot of people are becoming vegetarians these days. For a great many people the world food crisis

provides sufficient motivation to change from carnivorous livestock-based diets to vegetarian diets. Some of those so motivated have contended that a diet which includes fish would be a smaller strain on the resources of the land to produce food for our planet's large human population. This statement overlooks the fact that fish use plankton of plant origin as a primary food at the low level of the food chain. A plankton cultivation system arising from a future technology would be a much more efficient method of producing food for earth's people than eating fish which are much higher on the food chain than plankton.

Plankton cultivation of course would require the development of a technology which did not remove this key planetary input from its role as an oxygen provider. Much of the world's oxygen is provided by plankton. A plankton cultivation system could be developed without too much effort if it became necessary. To date it is not. The produce of the land if eaten directly can today supply more than enough food for all of the planet's human inhabitants. We now have available about one acre of arable land per person on which to produce food for everyone now living. A vegetarian diet requires about half an acre per person; and half of that will provide a total vegetarian or "vegan" diet.

Jacques Cousteau has been quoted as saying that *some 40% of the life in the seas has died in recent decades*. Pollution has been a major factor in this devastation. So has so-called "overfishing" of the world's waters. To the fish which is caught, any fishing is "overfishing." The massive scale of modern fishing has led to a great increase over time in fish yields up until recent years. A few short years ago a decline in yields was noted even though fishing was being attempted on an even grander scale. Clearly the fish population is being decimated by fishing. Massive fish kills caused by pollution have also been reported in recent years around the world. Like other animals fish concentrate environmental pollutants the higher one goes up the food chain. Recently fishing the Hudson River was banned because of the presence of PolyChlorinated Biphenyls (PCBs) in fish at levels up to 350 parts per million. FDA surveys of grocery store foods in 1972 had shown PCBs to be present at levels up to 35 pans per million in fish. A 35 part per million level constitutes 7 times the level of PCBs which sterilized mink whose diets included Lake Michigan Coho Salmon. Lake Michigan residents were warned not to consume more salmon. The PCB dietary levels of the mink were determined to have been 5 parts per million. That level caused complete reproductive failure in the mink. The mink ranchers have since switched to other foods for the mink. The presence of 70 times the 5 part per million level in Hudson River fish was blamed on General Electric which had been dumping the industrial chemical in the river for years. Widely used in industry, PCBs have also entered the environment through the burning of containers in which they have been used.

PCBs are used in plasticizers, adhesives, sealants, transformers, and a wide variety of industrial applications. A 1973 study by scientists at the Davis Campus of the University of California reported that PCBs were the environmental derivative of DDT degrading in the environment. Recognition of PCBs in walruses, seals and polar bears at the Arctic Circle had prompted the research of the Davis scientists. The Arctic Circle is thousands of miles from the nearest industrial application of PCBs. DDT has been used worldwide. Spread by wind and water, DDT is estimated to be present in every human being. The Davis team reported that the interaction of time, about four years, and sunlight causes DDT to break down becoming PCBs. Half the American population is estimated to have measurable amounts of PCBs. Concentrated up the food chain via fish and other animal products, PCBs like other pollutants, reach the consumers of these products in high levels. Fish kills caused by PCBs have been reported around the world. PCBs at low levels have also caused mutations in plankton.

A sampling of massive fish kills from various sources of pollution in recent years would paint a picture somewhat like this:

June 1968, 100,000 fish in the Stanislaus River in California including carp, catfish, sturgeon, striped bass, sunfish, shad, smallmouth black bass, hardheads, blue-gills are found dead in the river. The California State Fish and Game Department calls the fish kill the result of pollution.

August 12, 1968, a number called significant by the Virginia State Water Control Board is reported in

fish killed in the James River because of toxic human-made chemicals introduced into the water.

August 29, 1968, 1,000 small fish of different species are found dead in Accabonac Harbor at Riverhead, Long Island, New York.

Pesticides Spray

The New York State Bureau of Marine Fisheries calls pesticide spraying the cause of the fish kill.

Scuba divers off Sea Bright, New Jersey, in the spring of 1969, report a graveyard of crustaceans and fish at depths of less than 100 feet. Cunner, black sea bass, ocean pout, rock crabs, tautog, lobsters, mussels are among those found dead. Great migrations of fish and crustaceans away from the region are reported by other divers. A low level of dissolved oxygen in the water is estimated to be the cause of death.

The Rhine River in West Germany and Holland in June of 1969 is the site of a fish kill of perhaps 40 million fish. Endosulfan, a chlorinated cyclic hydrocarbon marketed by the Hoechst chemical firm as Thiodan, is the cause of the kill.

May 5, 1970: 349,000 plus fish die in Missouri's Crooked Creek after a large quantity of toxic material is dumped into the water. Clordane and Malathion in Xylene is blamed for the kill. Ninety percent of the dead fish are orange throat divers and minnows. All other aquatic life in the stream is killed for a distance of two miles from the dumping. Snakes, turtles, tadpoles, crayfish and large numbers of frogs are among those killed.

December 18, 1970: millions of fish wash ashore dead off the Peruvian coast of Pisco. A thick layer of dead fish 15 feet wide is formed stretching nearly two miles. Flounders, "cabrillas" rays, "corvinillas," ayanques, and "pintadillas" are among those killed. Toxic sewage is a suspected cause of the kill.

May 30, 1971: Large numbers of dying fish drift ashore between Jubail and Ras Tanura on the Saudi Arabian Persian Gulf. Hamoor, black sbaitee, and angel fish are among those killed. Large mature adults weighing from one to 10 pounds with some up to 20 pounds are the principal victims of the kill. A large octopus and a large barracuda are also found killed. The cause of the kill is not discovered to date. All of the fish have grossly inflated air-bladders. The network of blood vessels in the airbladder's dorsal wall is enormously distended and filled with blood. All the fish have empty stomachs but were fat and seemed normal.

August 5, 1971: Lees River, Massachusetts is the site of a fish kill involving nine species of marine fish and two species of invertebrates. Over one million juvenile menhaden are killed. Lesser numbers of weakfish, cunner, American eel, tautog, oyster toad fish, white perch, silver-side and mummichog also die. Half a million prawns are killed. A depressed level of dissolved oxygen is blamed on industrial and commercial discharges. Excessive nitrogen, phosphorus and ammonia are found.

Metropolitan New York: Fish "caught" off the New York gap, the site of sewage dumping for large parts of the Metropolitan area, are being brought on board ship decks and breaking up on the decks. As a result the fish are being sold fillet rather than whole. The situation continues to date.

Clearly the dangers involved in eating fish ought to be reason enough to be truly vegetarian. The tragic case of the many Japanese children born deformed because polluted fish were eaten by the parents (of the Minamata, Japan children) is one which may be repeated more often as people continue to eat animals from the sea. Mercury is blamed for pollution of the fish in that case.

The fact that PCBs have been found to produce cancer as well as sterility, disfigurement, liver problems, and other horrors, ought to prompt officials to ban fish containing PCBs under the provisions of the Delaney Amendment. The Delaney clause states that chemicals found to cause cancer cannot be present in foods. If PCBs cannot be removed from "foods," those containing PCBs should be banned from human consumption.

What of the ethical side of the question? Dolphins face extinction because modern tuna fishing catches and kills large numbers of them each year. We should be concerned about the tuna also. Each tuna is a living creature with a right to live. To a fish being caught the concept of "endangered species" is immediately reduced to one of "endangered individual." Can we relate as well to fish as we do to land animals? As vegetarians we can see that land animals move, breathe, feel, think, live. Do we not also realize that fish do all of this too? Perhaps a few days in a so-called "seafood" restaurant might convince one that the bodies of the fish being consumed are indeed bodies of once living, breathing, thinking, feeling animals who happened to live in water. In Taiwan live puppies are found in cages as one enters a restaurant. One can then select the dog to be killed for one's meal. The "chow dog" of old China is the original reason why chow mein has its name. In America and elsewhere in the world one can find live lobsters similarly displayed ready for murder, in the midst of restaurants. Aren't both acts equally horrible?

We can look too, to the meaning of the word "vegetarian;" it is derived from the Latin *vegetas*—full of life! Clearly if we fill our bodies with the bodies of murdered fish we are full of death instead of life.

Fishitarian or vegetarian, which will it be? The choice belongs to us. The victims cannot vote. In a sense though we are all victims of the fish-eating habit whether we eat fish ourselves or others do. The continued fishing of the world's waters may result in a disturbance of the already fragile eco-system of the waterlife of earth.

That fish and plankton are interdependent ought to be clear. Fish feed on plankton. Fish wastes and decayed fish become a basis for plankton nourishment. There is a symbiotic system among plants and animals in water just as there is on land. Plankton produce oxygen which is used by all life on earth. With increasing fishing removing fish from the waters of the world plankton may become a vanishing species. Without plankton earth would be deprived of vast amounts of oxygen. Without that oxygen it is likely that planetary extinction for all forms of life would follow. The continued plunder of earth's waterways for fish is senseless and dangerous. Whether we remove animals at the top of the ocean food chain like whales or animals near the bottom of the food chain like krill which are a fish type of plankton, we are dangerously jeopardizing the planet's ecosystem. Krill has been looked upon by some as a potential new food for people. Hundreds of millions of tons of krill may soon be "harvested" annually for human consumption. That these fish plankton are interlocked with plant plankton which produce oxygen should be clear. Removing them may endanger the continued existence of the plant plankton they have interplay with.

Even those who do not consume fish directly may be consuming them indirectly. Fish are now a major source of animal feed in America and other parts of the world. The use of animals and animal products as food actually involves the indirect consumption of many fish. Fish oils are also often used as a source of the Vitamin D added to milk. Some dairies use irradiated ergosterol, also called viosterol, as a vegetarian source of Vitamin D, but switch to fish oils as price dictates.

Conscience then dictates abstinence from animals and animal products in one's diet. As a first step in one's vegetarianism the elimination of *all flesh* as food is a good move. Fish, like other animals, belong in their native environment and not in our stomachs. As we are what we eat, if we do not eat corpses we are less likely to become corpses quickly ourselves.

Fishitarian or Vegetarian? Hopefully a wise choice to be vegetarian will be made by all of us.

Article #14: The Facts About Vitamin B12 by Robin Hur

Vitamin B12 is an essential nutrient; it is involved in the production of red blood cells and in the utilization of nervous system-dependent carbohydrates. The inability to absorb B12 leads to so-called "pernicious anemia" in which abnormal red cells are formed, while a lack of B12 in the diet raises the risk of damage to nerves of the spinal cord. Inasmuch as nutritionists report that there is little, if any, of the vitamin in plant foods it behooves strict vegetarians to assure themselves of adequate supplies of B12.

A Mt. Sinai researcher suggests adults need about 0.1 microgram of B12 per day. However, this recommendation is based on observations of individuals taking conventional diets. Normal diets contain gross excesses of fat, protein and refined foods, all of which tend to elevate needs for B12.

Indian researchers found that high-fat intake causes marked B12 deficiency in laboratory animals fed normal amounts of the vitamin; saturated fats, in which beef, eggs and dairy products are extremely high, had an especially severe effect. High protein diets tend to deplete the vitamin in the blood, liver and kidneys of laboratory animals; animal proteins evidently produce more rapid loses than plant proteins. A diet dominated by refined foods more than doubled the B12 needs of baboons. Diets high in animal products, fat and refined carbohydrates lead to conditions in which absorption of B12 is inhibited in humans also.

It appears adults taking low fat, whole food vegan diets should need no more than 0.05 micrograms of B12 daily. The National Research Council recommends adults take 100 times that amount, or 5 micrograms per day. With consistent inconsistency they recommend 1.0 microgram of B12 per day for infants, which is a high multiple of what breast-fed tots get.

It's not altogether clear that nonsmoking vegans need any B12 as such in their diets. The vitamin is normally synthesized by bacteria in the lower regions of the digestive tract and nonsmoking vegans evidently develop the capacity to absorb adequate amounts of their bacterial supplies. British researchers report that only one nonsmoking vegan is known to have suffered from "manifest symptoms and signs" of B12 deficiency. On the other hand, the serum B12 levels of British vegans tend to be very low during their first few years on a vegan regime. And as long as serum levels remain low the possibility of neurological damage persists.

There are several ways in which vegans can protect themselves against declining amounts of B12 in their blood and elsewhere. They could of course take supplements, but supplemental B12 should not be necessary if the diet itself is a sound one. To this end vegans should avoid high levels of fat and protein and avoid tobacco and refined foods. These moves will keep B12 needs down and facilitate synthesis and absorption of the vitamin. As added precautions vegans can include good sources of cobalt and/or B12 itself in their diets.

Each molecule of Vitamin B12 contains a molecule of cobalt so the diet must include a source of cobalt if the intestinal flora are to synthesize the vitamin. Seaweeds are incredibly rich in cobalt: the amount of kelp it takes to flavor a single bowl of salad contains enough cobalt to synthesize a year's supply of B12. And there is growing evidence that raising cobalt intake raises the body's supplies of B12.

The serum B12 levels of rabbits rise when they are fed inorganic cobalt or hay and oats grown in soil containing normal amounts of cobalt. Hamsters fed inorganic cobalt and no B12 had relatively high tissue levels of B12 and seemed to be obtaining entirely adequate amounts of the vitamin.

The Cal-Berkeley researchers who conducted the hamster study reported their result to be "a new finding among the nonruminants." Prior to this finding, though, a Russian researcher had reported that the combination of iron, vitamin C and cobalt had a positive effect on B12 deficiency in humans.

Vegans who want to get their B12 ready-made need look no further than their gardens. An ounce of the roots of leeks, beets, and other vegetables would provide .1 to .3 micrograms of B12 which is more than a day's needs. By eating vegetables right out of the garden one inevitably takes in a little soil and healthy soil contains healthy amounts of B12.

When livestock are taken from open areas and put in feedlots, broiler "hotels," and hog "factories," the animals must be given supplemental B12 to compensate for their inability to nose (or beak) around the soil. All foods in the wild tend to pick up B12-bearing soil and micro-organisms. South African researchers discovered bats that live exclusively on fruit need as much of B12 as humans. The "fruit bats" get plenty of B12 when living in the wild but when brought into captivity and fed store-bought fruits they developed severe B12 deficiency.

Seaweed contains not only enormous amounts of cobalt, but rather substantial amounts of B12 itself. Concentrations vary widely, however, ranging from 0.004 micro-grams per gram for kelp to 0.6 micrograms per gram for calothrex parientina. Two ounces of the latter would provide an adult with a whole year's supply of B12. It would require about a third of an ounce of kelp per day to obtain all one's B12 needs in the form of active B12 from kelp. In view of the large amount of cobalt in kelp, though, vegans should need no more than sprinkling amounts of that (or any other) seaweed.

Seaweeds are actually species of algae. Other algae, including the "moss" that grows on the north sides of trees and the "scum" that builds up in ponds, are also good sources of B12. Algae from Lake Chad is dried into B12-rich cakes which have a taste and texture not unlike cheese. You can get a week's supply of B12 from the water you take in while swimming in a fresh water pond or an unchlorinated swimming pool.

Greens and sprouts offer the broadest possible array of vitamins and minerals: if grown in soil rich in cobalt and iodine they are apt to provide everything the body needs except a source of energy. Vegans who raise their own food can assure themselves of adequate intakes of iodine and cobalt by enriching their soil with seaweed. Those who rely on store-bought foods can include a little seaweed in their diets. Both groups can boost their B12 intakes by eating, rather than discarding, the stringy roots of common vegetables and eating in the wild. AH vegetarians should avoid tobacco and refined foods and keep fat and protein intakes down; these moves will lower B12 needs, enhance absorption of the vitamin and insure the individual good health.

There are reports that greens and sprouts contain active B12. Comfrey was said to be a rather good source of the vitamin but British researchers claim they found no B12 in comfrey. Meanwhile, we have plenty of known sources of the vitamin in our gardens, forests, ponds, lakes and oceans. We need only reunite ourselves with our natural surroundings to abound in what our bodies need.

Article #15: Wolf! Wolf! by V.V. Vetrano, B.S., D.C.

Wolf! Wolf! cry the media. Then everybody runs as fast as they can, including *Hygienists* and some *Hygienic doctors*.

There were too many people becoming vegetarians, so something had to be done to scare them away from this healthful and unprofitable practice. The animal-exploiting industry was probably behind the study which was done on the Vegans in England, and other studies that were done here in America and elsewhere.

Hygienists, vegetarians, and Vegans are all in a dither because of the newspaper stories in the regular media about the dire consequences of a strict vegetarian diet. Some are buying dulse. Some are eating brewer's yeast; some are taking vitamin B12 supplements; and some are eating meat, cheese and eggs again because they are actually afraid.

Why should they be afraid? I'm not the least bit afraid. Our principles are either right or wrong. They have worked for *Hygienists* for over a hundred years, so how can they be wrong? I've seen these principles properly applied succesfully over and over again in pernicious anemia and other so-called "deficiency" diseases and I know for sure it is not the principles that are wrong.

We are going to devote much of this issue of the *Review* to exposing the vitamin B12 hoax. It must be done because unfortunately people will allow themselves to be tossed about like houses in a tornado instead of realizing that *Hygienic* principles are *not* wrong.

When the vitamin B12 scare occurred and the media kept telling us we couldn't get our vitamin B12 from the diet to which we are anatomically and physiologically adapted, I immediately suspected something. To myself, I said: "If we can't get vitamin B12 from our foods, or if bacteria cannot manufacture it in our intestinal tracts, then everything we are fighting for and everything we believe in is untrue. If we have to go out and become a coprophagous (manure-eating) animal and eat inadequately washed vegetables to secure our vitamin B12, then *Hygiene* as a science is invalid. We are either frugivores or we are not."

Since numerous scientists for the past 200 years have shown us that we are primates, and that fruits, vegetables and nuts are the proper foods for people, then the fault lies elsewhere.

Dr. Shelton is not able to keep everybody in line because he is busy writing a book. He has not been keeping up to date on some modern issues.

Somebody has to help prevent people from being scared by the wolf call every time the medical profession, the meat packing industry, and the purveyors of so-called health foods cry "wolf!" So I'm going to do it.

For all those who will listen, I'm going to do my best to uphold the principles of *Natural Hygiene* in the future. This does not mean that our growth will be stifled as some claim simply because we stick to *Hygienic* princples. To insult *Hygienic* principles merely because they were discovered years ago is as foolish as casting aside Newton's Law of Gravity because it was discovered years ago. The passage of time does not invalidate truth. We are going to look for the real cause of the problem and place the responsibility where it really belongs. We will get rid of causes instead of palliating symptoms with supplements.

For those people who are in doubt about *Hygienic* principles, I suggest that you study *Hygiene* more thoroughly. If it is wrong in this one instance then the whole system is wrong—and the whole system is *not* wrong.

Article #16: The Vitamin B12 Hoax by V.V. Vetrano, B.S., D.C.

The medical profession is screaming "wolf" and we are foolishly falling for it. Physicians are constantly bombarding the country with articles telling vegetarians that they must eat animal products such as meat, fish, eggs, or milk and cheese in order to make a sufficient amount of vitamin B12. They are grouping all vegetarians together and not discriminating at all. Just because there may be some sick vegetarians who cannot absorb vitamin B12 (and this is questioned by eminent scientists), it does not follow that all

vegetarians cannot absorb this vitamin. Most people who have turned to vegetarianism were sick to begin with and this sickness is the reason they changed their diets. Most of them willingly state they have been healthier since changing than ever before in their lives. One or two vegetarians may seem to be a little low in Vitamin B12 but this does not mean that all strict vegetarians are, or ever will be.

I'm surprised that *Hygienists* are falling for the propaganda that is purposely put out to scare people away from becoming vegetarians. It is a scientific fact that we are frugivores and the frugivorous diet has been well established scientifically. We know the *Hygienic* diet of fruits, nuts, and vegetables is the diet that we are supposed to live on. We will be well-nourished and more healthy if we eat only those foods to which we are constitutionally adapted.

There are so few people who live strict *Hygienic* lives that I can't say that anyone has superior health at the present time and in the present polluted environment. Simply because in our present polluted environment, where people are forced to overwork, very few people are living *Hygienically* does not mean that people *cannot* live *Hygienically*, and the fact that one or two Vegans (not *Hygienic*-Vegans) may be low in vitamin B12 does not mean that a strict *Hygienist*, living correctly in all other aspects, will lack vitamin B12.

Here is another thought: Nature puts very little vitamin B12 in foods meant for people. This should tell us something. If she put very little of this vitamin in food, it must mean that either we don't need very much, or that we must rely on bacteria to form it for us. Also, who can say how much of this vitamin is necessary? According to medical sources only one microgram a day is adequate to "cure" pernicious anemia, so the minimum requirement has been set at this level. We may not need even this much. Just because some scientists took a group of conventional people on an omnivorous diet and determined the amount of vitamin B12 in their systems, averaged that, and came up with a figure, one cannot conclude that this is the amount of B12 necessary for normal healthy *Hygienists*, vegetarians, and Vegans. How many times has Dr. Shelton pointed out to us that taking the averages of anything from a group of sick people means nothing? Why should an average of B12 in a lot of people eating haphazardly and gorging daily on gore, guts and garbage made of animal bodies and their secretions, scare us to death? Have we no faith in the living organism? Have we no faith in the natural scheme of things? Are we forever going to let ourselves be blown hither and thither like a feather in the wind by every two bit scientist that comes along? Have we no faith in the principles of *Hygiene*? We should be standing firm like a mighty oak with our roots deeply planted into the solid foundation of *Hygiene* that Dr. Shelton structured so well for us. Instead, we are a group of wishy-washy people, frightened to death about one case of a vegetarian lacking vitamin B12. The papers capitalized on this one case to scare people into the meat markets and vitamin shops.

I've fasted numerous cases of people with pernicious anemia who have recovered their health by turning to *Hygiene*. I've never seen a *Hygienist* who had pernicious anemia. The flesh eaters supposedly secure plenty of vitamin B12. Why do *they* develop pernicious anemia? They are overloaded with vitamin B12. Why couldn't they recover under medical care? They had had vitamin B12 shots, liver extract, and vitamin pills. Why did it not cure them? I'll tell you why. Simply because life and health are more than one vitamin. Life is more than two vitamins. Life and health depend on a myriad of reactions and inter-reactions of materials and influences, not just one. Supplying just one element of the physiological needs of the body won't produce superior health. It may mask symptoms sufficiently for a while to fool the physicians with the scientific minds, who believe in specific cures for specific diseases, but it never fools Nature.

We are in a world that is rapidly deteriorating. We are turning out children who are sickly and who have very little vitality. Because of the environmental pollution, they are sometimes lacking in digestive enzymes as well as one or more enzymes or hormones that are absolutely essential for health and sometimes life. You can't blame *Hygiene* for this deterioration. The fault lies not in *Hygiene*, whose principles are eternally true, but in our wrong way of living and our polluted environment. How quick we are to point the finger at *Hygiene* and say; "It's lacking. It must be changed. We must go forward. *Hygiene* must not be stifled." I do not call sticking to basic principles being stifled. If someone feels he

or she is dusting antiques when upholding the principles of *Natural Hygiene* then he or she doesn't understand *Hygiene*, or he or she is looking for ways to compromise.

Instead of looking for the reasons why *Hygiene* may not appear to be valid, people immediately condemn *Hygiene* and revert back to their dirty, disease-producing omnivorous diet.

Instead of trying to prove the validity of the science of *Hygiene*, modern *Hygienists* seem to be busily engaged in trying to disprove it. With so little faith, how can we expect to grow?

Just because pollution in our environment from cars, nuclear plants, power plants, microwave stations, etc. causes some people to be born with deficiencies so they are unable to digest, absorb or utilize vitamin B12, one cannot infer that every vegetarian has this defect. Therefore, it is not true that every vegetarian needs to eat some dairy products in order to have sufficient B12.

Some *Hygienists* may complain that they don't have the discipline to live *Hygienically* in an un*Hygienic* environment. If they develop anemia, one cannot say that *Hygiene* is at fault; if *Hygienic* principles are violated, the individual must suffer. In addition we must not overlook the fact that some people say they are living *Hygienically* when they are not. We must delve deeply into their life history to see whether or not they are truly carrying out a *Hygienic* life. Nine times out of ten they are not.

Why do people with pernicious anemia recover their health when coming to the Health School? Simply because the cause of the anemia is removed and the conditions of health are supplied and the body heals itself. Why haven't those supposed Vegans who developed vitamin B12 deficiency come for real *Hygienic* care instead of listening to researchers who are subsidized by the meat packing industry? Why do they think they have to take shots of vitamin B12 and resort to eating dessicated liver? Why do those who guide them assume they cannot, recover? Have they not thought of living completely *Hygienically*? Why do they not fast to see what the body can do before they fall prey to the vendors of medications and drugs? One reason is because they have been frightened to death and led astray by the vendors of palliatives.

I fasted one woman who had pernicious anemia and who was taking vitamin B12 and iron shots once a month. She was very sick before coming to the Health School but she recovered, not only from that trouble but from several other problems, at the same time. Why? Because disease is a unity and people don't have just one disease. When a person is toxic the whole organism begins to deteriorate, and piecemeal treatment to hide symptoms is not satisfactory. Nothing short of total Hygienic care will suffice.

Let us not forget that Dr. William Howard Hay recorded 101 cases of pernicious anemia and only eight of those cases failed to recover—and these people were dying when they arrived for his care. Although these cases were recorded fifty to seventy-five years ago, we cannot ignore them. This date points out to me that there are changing conditions in our environment. Instead of condemning and questioning the science of *Hygiene*, as so many people are doing today, we should be seeking the true cause of the increase in cases of pernicious anemia, if there be such an increase.

I've been warning people since 1953 that our environment is lethal and if we don't do something we won't have a race left. Cleaning up our environment is almost more important, at this stage of the game, than *Hygiene*. The world is analogous to the body when given a dose of medicine (poison). An emergency situation has arisen and all bodily processes must be stopped for the more immediate emergency of getting the poison out of the system. Likewise, our Earth is rapidly becoming so poisoned that emergency measures must be taken before we are all killed. The race is deteriorating so fast that it is frightening. We've got to spread *Hygiene* on every front before much more deterioration takes place or it may be irreversible.

It is well known that the past few generations have abused their stomachs terribly. Each generation has been sicker than the last. When people become sick they begin the *Hygienic* diet without first fasting or permitting the body to heal itself. Consequently if they develop a deficiency because of impaired digestion the deficiency is attributed to the vegetarian diet. Actually the deficiency is due to the abuse

given the body before becoming a *Hygienist*. We know that sick people who have been on vitamin B12 injections for years, without much benefit, can take a fast and get well. This recovery would indicate that they still had the power to secrete the intrinsic factor. It also indicates that possibly these people were suffering with a simple gastritis and that after fasting, their inflammatory condition healed, leaving them better able to secrete the necessary enzymes for good digestion, absorption and utilization. It is a fact the anemic get well while fasting and stay well if they continue to live properly. Why they get well is due to a number of factors. The blood picture improves while fasting, though no extraneous vitamin B12 is available. Let those screaming "deficiency" explain that.

The elimination of the toxic factor while fasting is extremely important for recovery of health. Removing toxemia, which is a great inhibiting influence on both digestion and the blood-forming organs is the prime factor in recovery. Toxemia causes lowered functioning power, not only of the secreting glands of the stomach but of every organ in the body, including the blood-forming organs. Lowered functioning power of the entire gastrointestinal system hinders digestion, and causes much fermentation and putrefaction. This in turn interferes with digestion and absorption of nutriments necessary for the production of blood, and also causes the absorption of toxic products of indigestion, producing more toxemia which in turn causes even less functioning and blood-forming power. Good digestion is necessary to remove the protein with which it is combined away from vitamin B12 so it can be combined with intrinsic factor for normal absorption.

Vitamin B12 is necessary in miniscule amounts. It is needed in such small amounts it is spoken of in micrograms, not even in milligrams. Regardless of what authorities say, this much we can secure through the *Hygienic* diet of fruits, nuts and vegetables. When people like Adele Davis, in *Let's Get Well*, say that strict vegetarians who eat no animal foods should take 50 micrograms of vitamin B12 each week "while their stomach secretions are still normal," they are unduly scaring some vegetarians.

Experiments reported in *Gastroenterology* in 1962 lead to the belief that laboratory rats on a diet deficient in iron soon "lost their ability to absorb vitamin B12." This points out the totality of diet. Deficiencies seldom come single. There are many people with gastrointestinal problems who simply don't absorb any of their food properly. These may be lacking in vitamin B12. Again, we see that it is not the *System* that is wrong, but the person. Correction must be aimed at the cause of the problem, not at the modifying *Hygiene*. If we modified *Hygiene* every-time someone got sick, there would soon be no *Hygiene* left and we would all be back in the treating business. We don't change the *Hygienic system* or tell everyone who is eating *Hygienically* to take vitamin B12 just because there is someone who is sick and can't absorb vitamin B12 temporarily. Just because there are a few individuals, not even **Hygienists**, who can't absorb vitamin B12 it does not follow that everyone has to resort to taking vitamin B12 tablets or to eating yeast, or animal foods. Just because some vegetarians develop gastroenteritis from wrong ways of living, does not mean that they all do. We don't change the entire *Hygienic* system and diet any other time just because some people are temporarily unable to digest certain foods. We permit them to recover their health and then they are able to take all the foods that are *Hygienic*. In short, we aim at restoring the sick person to health so he or she can function properly in the future.

Most sources state that vegetable products show no "measurable activity" when speaking of vitamin B12 or cobalamin. "No measurable activity" does not mean that there is no vitamin B12 at all in vegetables. Best and Taylor state that: "The extrinsic factor (vitamin B12) is present in liver, beef, rice polishings, yeast and other substances rich in the vitamin B complex." They continue that: "It is also found in the intestinal contents of normal persons, as well as in the feces of patients with pernicious anemia. There is, therefore, no reason to believe that a dietary deficiency of this factor is the cause of disease." Other authorities say the same. Many scientists condemn vegetable foods as lacking in vitamin B12, but they never state that there is absolutely *no* vitamin B12 in vegetable foods. Indeed, they wish us to believe that it is totally lacking and this is simply not true. The *Heinz Handbook of Nutrition* (page 111) gives the following inadequate table but even if we ate the small amount of 100 grams of green beans, beets, carrots, and peas, even leaving out the cereal products, we would have half of our so-called minimum daily requirement of vitamin B12, providing our digestion and absorption are normal.

Vitamin B12 In Foods

Micrograms per 100-gr edible Portion

Green Beans	0-0.2
Beets	0-0.1
Bread, Wholewheat	0.2-0.4
Carrots	0-0.1
Oats	0.3
Peas	0.0-1.0
Soybean Meal	0.2

The Heinz Handbook of Nutrtion states that, "A dosage corresponding to one microgram of the crystalline vitamin per day is sufficient for maintenance of a patient with pernicious anemia. This indicates the absorption of one microgram per day meets the normal requirement for adults."

The *Nutrition Almanac* states that, "In nature, we find the B-complex vitamins in yeast, green vegetables, etc., *but nowhere do we find a single B vitamin isolated from the rest*. Natural forms of the B vitamins are preferable to the synthetic forms since the natural forms have all of the B factors, even those not yet known, plus valuable enzymes." This is just another indication that people are mistaken when they state that vegetables do not have vitamin B12 in them. Simply because it exists in such miniscule amounts that it may escape detection by present day methods, does not mean it is absent.

Best and Taylor say that all the B vitamins are grouped together because they are found together in Nature. They couldn't be separated one from the other for a long time, so they were thought to be one vitamin. He intimates that where other B vitamins are found there also will be cobalamin. "Twelve substances are grouped together because of their close association in tissues and because for a long time their separation proved most difficult: thiamine, riboflavin, nicotinic acid, pyridoxine, pantothenic acid, biotin, para-aminobenzoic acid, folk acid, folinic acid, cyanocobalamin, choline, and inositol. All have been isolated in pure form, and most of them have been synthesized in the laboratory."

Another indication that vitamin B12 is in fruits, nuts, seeds and vegetables containing the other B vitamins is in Rodale's book entitled *The Complete Book of Vitamins* (page 236). "As you know, the B complex of vitamins is called a 'complex' because, instead of being one vitamin, it has turned out to be a large number of related vitamins, which appear generally in the *same* foods." We need such a microscopic amount of vitamin B12, it is not understandable why he urges people to eat so much liver and other foods containing vitamin B12, when excess is not necessary for health, in fact, an excess of anything has only proved to be detrimental to health. I suppose he is assuming everyone eats refined products, drinks coffee, smokes, and takes antibiotics; these practices do produce deficiencies, as some cause the excessive utilization of the B vitamins.

Recently researchers have been coming to the conclusion that Dr. Shelton came to many years ago regarding the "Intrinsic Factor." Dr. Shelton surmised that it was poor digestion that prevented the people from absorbing vitamin B12 and that there was nothing mysterious about it and that the intrinsic factor was simply a normal supply of digestive enzymes. In other words, Castle, who discovered the

Intrinsic Factor, which has never been isolated from gastric juice, was wrong in thinking that there was a particular substance in gastric juice necessary for the absorption of vitamin B12.

This "particular substance" is simply good digestion. Vitamin B12 comes combined with protein. In order for the vitamin to be absorbed the protein must be split off so that the vitamin can be combined with the necessary substances, thought also to be protein. Dr. J.G. Heathcote and Dr. F.E. Mooney of St. Helena's Hospital, London, stated that, in spite of an enormous amount of work, there is very little agreement among researchers even on limited properties of the supposed intrinsic factor. They say that "it has never been isolated or identified." This is still true. They "believe, therefore, that intrinsic factor as currently understood, has no real existence per se, and that the fundamental process preceding absorption of vitamin B12 is simply one of normal degradation or digestion of animal protein." Rodale, *The Complete Book of Vitamins*, page 241.

There are many causes of impaired digestion but suffice it to say that *Hygienists* should realize if they abuse their stomachs and intestines by overeating they may eventually suffer malabsorption problems.

It is well known that almonds, asparagus, beans, cashew nuts, figs, lentils, peanuts, pecans, avocado, brussels sprouts, cauliflower, collards, fresh and dried peas of all kinds; plums, raisins, walnuts (black and English), contain vitamin B1. Since all the B vitamins are usually grouped together, in all likelihood there must be some vitamin B12 in these and other vegetable foods.

One of the problems with modern *Hygienists* is that they are afraid to eat nuts. They are so fearful of eating an excess of nuts that they eat far too few. We took Raven Rose Haag off all dairy products at the tender age of fourteen months and fed her nuts. She did not like nut milks and would not drink them so we blended her nuts and let her eat as much of them as she desired. She may have had an excess but her health never showed it. She grew perfectly. Those of you who saw her at the convention can vouch for the fact that her rosy cheeks, happy, smiling disposition and vitality certainly does not indicate anemia. She will be three years old in October.

There is no source that states that vegetables contain absolutely no vitamin B12. The *Cyclopedia of Medicine* says that vegetables contain practically no vitamin B12, in contrast to their high content of folic acid. Simply because animal foods are so very high in vitamin B12 causes all researchers to underestimate the fact that vegetables do contain vitamin B12. Although vegetables do not synthesize vitamin B, the soil bacteria do, and some sources state that the bacteria make the vitamin and actually hand it over to the higher plants. All the plant has to do is absorb it.

Not until we are furnished with a reliable source of information, and not until they have tested all fruits, vegetables and nuts, can we say that *Hygienic*-Vegans are unable to secure a sufficient amount of vitamin B12 from their diets.

According to most nutritionists and health authorities, strict vegetarians must take pills, or eat animal foods, or suffer with a B12 deficiency and die of neurological and blood disorders. This has not been proved by scientists and in another article I will definitely show this. Vegans are not suffering from pernicious anemia and they are healthy, in fact healthier than their meat eating friends.

Some animals secure their cobalamin (vitamin B12) by eating manure which is a very rich source, because it seems to be produced by bacteria in various parts of the guts of animals. Ruminants are furnished B12 or cobalamin by microorganisms which produce it in their digestive tracts. But in poor slighted humankind, the current thought is that the vitamin B12 produced by bacteria in his gut can't be absorbed. This has been shown to be false and there are experiments that lead us to believe that cobalamin manufactured by bacteria in the intestinal tracts of primates can be absorbed.

A few years ago I wrote an article about vitamin B12 and I said that if vitamin B12 is not in fresh fruits, vegetables and nuts, and bacteria do not manufacture it where humans can absorb it, then we do not need it. The diet to which man is constitutionally adapted should furnish all the requisites of good nutrition. If it isn't present in the diet and bacteria do not produce it where it is absorbable by man, then what can we think except that we don't need it or Nature must have made a great big mistake. She neglected to take

care of her most perfect creature.

We know *Nature* did not neglect man. I hold that the vitamin is in our foods. I also have facts which give me reason to believe that bacteria in the stomach, and in the upper and lower small intestine, produce it for us. I also believe that it is absorbed from the small intestine in humans and I have articles which show that, in at least one primate that was studied, this must take place.

You must rest assured that we do not have to resort to pills, algae or animal parts, to secure our Vitamin B12. Nature did not forget humankind. All this scare about vitamin B12 is just a big hoax and it is done purposely by newspaper and nutrition propagandists to keep people from becoming vegetarians, and to sell meat, dairy products, vitamins and sea weeds.

Eat your nuts, fruits, vegetables, and seeds in good combinations for proper digestion and absorption, all in the uncooked state, and don't take antibiotics and you can be sure that you will secure a sufficient amount of all of the B vitamins and in the proper proportion, one to the other, so that the maximum amount can be absorbed and properly utilized. Don't let yourself be pushed about by every fly-by-night "health authority" who knows nothing about *Hygiene*. Learn your principles and stand up for them! They are as true today as yesterday. Truth does not change.

Article #17: It's A Lie! Vegans Are Not Lacking In Vitamin B12 by V.V. Vetrano, B.S., D.C.

There has been so much controversy about Vegans having a vitamin B12 deficiency that I thought I would go to the sources of information myself and determine what was true and what was not true. I secured an article about Vegans at the University of Texas Medical School library, at San Antonio, and when I read "Haematological Studies on Vegans," the article most often quoted by so-called health "authorities" showing that Vegans are deficient in vitamin B12, I was flabergasted. *It does not say that Vegans are deficient in vitamin B12 at all. The tests did not show that these people were suffering from anemia.* "The blood counts and films were normal in all the Vegans and no subject had a haemoglobin concentration below the lower limit of normality."

Vegan Males Actually Had More Haemoglobin Than Conventional Men On An Omnivorous Diet

"Although within the normal range, male (but not female) Vegans had lower values for *erythrocyte* counts and higher values for mean corpuscular volume and mean corpuscular haemoglobin than their controls." This simply means that the red blood cell count was normal in male and female Vegans, but lower in Vegan males than in the control group. It also means that the haemoglobin in Vegan males was higher than in the meat eating controls, showing that their red blood cells could carry more oxygen than the omnivorous controls. Also their mean corpuscular volume was higher. The quote follows:

"Although the blood films were normal, a number of statistically significant differences were noted between the Vegans and their omnivore controls: in the male but not the female Vegans the mean values for erythrocyte count and packed cell volume were lower ($R<0.01$ and $R<0.05$) and the mean values for mean corpuscular haemoglobin and mean corpuscular volume were higher (both $P<0.01$) regardless of whether they were taking vitamin B12 supplements or not: the mean values for serum vitamin B12 concentration was lower in the Vegans not taking vitamin B12 supplements ($P<0.01$) and in those using

foods supplemented with the vitamin (P<0.0l) but not in those taking vitamin B12 tablets; the mean value for serum folate was much higher in the Vegans (P<0.01); the mean erythrocyte folate concentration tended to be higher (P<0.05) in the Vegans not taking vitamin B12 supplements."

The Blood Count And Films Of The Vegan Subjects Were Essentially Normal

In their discussion of these facts the scientists state that "the blood counts and films of the Vegan subjects were essentially normal, in agreement with Hardinge and Stare (1954a) West and Ellis (1966) and Ellis and Montegriffo (1970). The findings that male but not female Vegans tended to have lower values for erythrocyte counts and higher values for mean corpuscular volume and mean corpuscular volume and mean corpuscular haemoglobin are novel." The researchers do not know what to think of this. They can't understand why a vegetarian can have more hemoglobin than a flesh eater.

Female Vegans Were Not Weak: Their Physical Activity Was Considered Normal

"Cotes, Dabbs, Hall, McDonald, Miller, Mumford & Saunders (1970) found no difference between the physiological response to exercise of female Caucasian Vegans and omnivores; no similar studies of male Caucasion Vegans appear to have been made and would be of interest."

None Of The Vegan Subjects Studied Had Vitamin B12 Deficiency

Actually the Vegans had normal erythrocyte folate concentration, which indicates no B12 deficiency. "The finding of lower serum vitamin B12 and higher serum folate values in Vegans is in agreement with previous reports (West & Ellis, 1966; Ellis & Montegriffo, 1970). Erythrocyte folate concentrations in Vegans do not appear to have been previously reported. The level of serum folate is often increased in patients with untreated pernicious anemia, while the erythrocyte folate concentration is abnormally low (Chanarin, 1969) apparently because vitamin B12 is necessary for the uptake of folate into the erythrocyte (*Nutrition Reviews*, 1975) *In this study none of the Vegan subjects had an abnormally low erythrocyte folate concentration; this would suggest: first, that none of the subjects was suffering from vitamin B12 deficiency and, second, that the high serum folate concentrations found in many of the Vegan subjects were due to high dietary intakes of folate. This might explain why megaloblastic anemia was not encountered in our Vegan subjects*."

No Vegan Subjects Had A Serum Vitamin B12 Concentration Indicative Of Deficiency (less than 80 ng/l WHO 1968)

Who says that the Vegans were lacking in vitamin B12? Even those Vegans who were not taking supplements or foods supplemented with vitamin B12 had what is considered normal serum levels of vitamin B12. All their blood cells were normally structured, not overly large or undersized. "*No subject had a haemoglobin value below the lower limit of normality* (13.0 ng/l for males, WHO 1968; 11.5 ng/l for females, Chanarin 1969). *No subject had a serum vitamin B12 concentration indicative of deficiency* (less than 80 ng/l WHO 1968) or a serum folate level less than 2.5 ug/l. There was no evidence of macrocytosis or, microcytosis, no polysegmented neutrophils were seen and all the blood films were normochromic when examined."

It is really pathetic and downright dishonest when newspaper reporters take half information and misinformation and spread actual lies to the public. These Vegans proved to be healthy in all ways despite not being strict *Hygienists*. It would be interesting to have a study of Vegan-Hygienists who live on all uncooked foods.

There appears to be some disagreement among the researchers. Rose (1976) claimed that megaloblastic anemia is a predictable consequence of the Vegan dietary habits adopted in Britain. But the findings failed to show it. "Vitamin B12 is a product of microbial synthesis and is not found in plant foods

(Lester Smith, 1965) and therefore should be absent from Vegan diets." If it was absent from Vegan diets, then why did they not develop anemia? Why did Hardinge and Stare (1945a), West & Ellis (1966), and Ellis & Montegriffo (1970) fail to find "any clinical or haematological evidence of vitamin B12 deficiency in their studies of Caucasian Vegans, although the serum concentrations of some of their subjects indicated deficiency." They were not sick. Perhaps absorption was not quite up to par in some of them. However, they were not anemic. Perhaps what is considered normal vitamin B12 serum levels is too high. Vegetarians not smoking and not drinking coffee don't require as much vitamin B12 as a conventional person who continually poisons himself or herself.

All The Vegans Were Healthy

"All the Vegan and omnivore subjects seemed healthy when studied. The Vegan subjects had been on the diet for an average of seven years (range: six months—30 years).

Six Healthy Subjects Were Breast-Fed By Vegan Mothers

The propaganda that every Vegan mother is lacking in vitamin B12 is sheer nonsense. Vegan mothers can nurse their babies as well as any omnivore and probably even better if they ate more raw foods and nuts. "Six subjects had been born of and breast-fed by Vegan mothers and weaned and reared on a Vegan diet. None of the Vegan subjects admitted eating meat, fish, eggs, milk products, or any other foods of animal origin."

Some of the Vegans were taking food supplements containing vitamin B12 and some were taking vitamin B12 tablets but the important fact is that those not doing so came out just as well in the tests as those using supplements, "...ten subjects were taking neither tablets nor foods supplemented with the vitamin. The mean serum vitamin B12 concentration was higher in those Vegans taking vitamin B12 tablets than those using foods supplemented with the vitamin (421+70 ng/l (mean ± SE) compared with 253 ± 19; $P<0.05$). Four of the ten subjects who were not taking vitamin B12 supplements had normal serum levels of the vitamin (greater than 180 ng/l): their vitamin B12 values were 200, 230, 220 and 235 ng/l, and they had been on the diet for 2, 6, 3 and 4 years respectively." If vitamin B12 is not in their diet then they are getting it from somewhere. It is probably in their diet and also being manufactured by their own microbial flora in their intestinal tracts. They are probably absorbing it very well.

Conclusion: The Present Study Finds No Lack Of Vitamin B12 In Vegans.

"Vitamin B12 is the vitamin most likely to be deficient in Vegan and occasionally vegetarian diets. The present study has provided no evidence of pathologically low values of vitamin B12 in the serum of Vegans. In twenty-four of the subjects this could be attributed to their taking vitamin supplements or foods supplemented with the vitamin. There were, however, ten subjects who did not take supplements and it was, therefore, surprising that these subjects did not show evidence of vitamin B12 deficiency. Some Vegans may obtain the vitamin through the accidental ingestion of insects or from micro-organisms, that produce the vitamin in their food or as a result of poor personal hygiene. Alternatively, some Vegans may be able to absorb vitamin B12 which has been synthesized by their own, micro flora." This is the usual way B12 is made. Recent evidence strongly points to the fact that primates absorb vitamin B12 manufactured by bacteria in their own intestines.

Researchers denigrate and insult people if people don't respond the way they should to their current theories and hypotheses. To state that Vegans are dirty and that they don't wash their vegetables well, and that their hygiene is poor is mudslinging. Vegans are among the thinking population. They are every bit as clean as omnivorous people, if not cleaner, because they probably realize that cleanliness is a part of a healthful program and many of them are thinking of health as well as of kindness to animals and people. I am sure that Vegans are absorbing some vitamin B12 that is synthesized by their intestinal flora.

Diagnosis Of Vitamin B12 Deficiency And Disease Found In Vegans Is Questioned Even By Authorities

I do not doubt the above subheading one bit. The conventional meat-eating scientists are so anxious to find something wrong with vegetarians that they blind themselves. The study I read intimates that the former diagnoses of blood and neurological disorders among Vegans were not very convincing. "A few cases of vitamin B12 deficiency, sometimes resulting in neurological symptoms, have been reported in Caucasian Vegans apparently due to dietary deficiency (Badenoch, 1952; Wokes et al. 1955; Smith, 1962; Hines, 1966; Verjaal & Timmermans-van den Bos, 1967; Winawer, Strieff & Zamcheck, 1967; Ledbetter & del Pozo, 1969; Misra & Fallofield, 1971. The results provided by Badenoch (1952), Wokes et al. (1955) and Smith (1962) are incomplete and their diagnoses of sub-acute combined degeneration of the spinal cord due to vitamin B12 deficiency are not convincing (Pallis & Lewis, 1974). However, this and other studies (Hardinge & Stare, 1954a; West & Ellis, 1966; Ellis & Montegriffo, 1970; Armstrong, Davies, Nichol, Van Merwyk & Larword, 1954) *failed to find symptoms attributable to a dietary deficiency of vitamin B12. This would suggest that dietary vitamin B12 deficiency is rare among Vegans*. "

So you see, it was all a hoax. The second group of scientists did not confirm the findings of the first group of scientists. Flesh eating people, on a diet of refined carbohydrates suffer with the most cases of pernicious anemia. I am sure that if statistics were made of all vegetarians, one would find more cases are found in flesh eating individuals than in the vegetarians. One would probably also find that the vegetarians were healthier on the whole than flesh eaters.

Never Believe The Final Conclusions Of A Flesh Eating Scientist

Always read the fine print. Never believe the conclusions of flesh eating scientists. This is exactly how and why ordinary news media all tell lies. Reporters take one sentence from a research paper and enlarge and elaborate on this and make a wild tale that would cause you to believe that all vegetarians, and especially Vegans, are deficient in vitamin B12. This simply has not been proved. After saying that the Vegans were normal, the scientists who presented the present study have the gall to say: "However, as there is a *possibility* of developing symptoms of vitamin B12 deficiency, Vegans should supplement their diets with the vitamin."

It Was Actually Found That The Vegans Were Healthier Than The Omnivore Controls And Less Prone To Cancer

The researchers won't actually come out and say it but they state that the Vegans would *probably* be less prone to ischaemic heart disease. The researchers do condescend to say that the Vegan diet will only probably promote normal blood formation, after showing that it definitely DOES in their study. They are so afraid to actually admit anything that it is shameful. They prove that the diet is good but they can't accept it. It is too foreign to their flesh eating minds, or they don't want their backers to think they are swayed by their findings less the subsidies be withdrawn and they lose their jobs. Consequently they keep playing down their actual findings. The last paragraph of their conclusions follows.

"The health of Caucasian Vegans appears to differ little from that of omnivores (Hardinge & Stare, 1954a; Ellis & Montegriffo, 1970; Ellis, West & Saunders, 1976; Sanders, 1977). Pregnancy in Caucasian Vegans and the health of children reared on Vegan diets appear to be essentially normal (Thomas, Ellis & Diggory, 1977; Mumford & Ellis, unpublished observations; Sanders, 1977). Caucasian Vegans tend to have lower concentrations of serum cholesterol and triglicerides and less body fat than omnivores (Hardinge & Stare, 1954b; Sanders, 1977) which suggest that they may be less prone to ischaemic heart disease than omnivores, and according to Aries, Crowther, Drasar, Hill & Ellis, (1971), Caucasian Vegans are probably less susceptible to cancer of the colon than omnivores. The Vegan diet appears to be adequate provided it comprises a mixture of unrefined cereals, pulses, nuts,

fruits and vegetables and is supplemented with vitamin B12 and D; such a diet will generally promote normal blood formation."

I can't believe it. After proving that the diets of Vegans not taking vitamin B12 supplements were normal, they still advise that Vegans take supplements. I guess they can't believe their own facts and figures. What a pity! They might learn something if they could open their minds.

Article #18: A Normal Source of Vitamin B12 by V.V. Vetrano, B.S., D.C.

It has long been difficult to produce a vitamin B12 deficiency in animals (Stokstad 1968). Yet, this is exactly what scientists tried to do to baboons in a study done by Uphill, Jacob and Lall, at the Wellcome Trust Research Laboratories, P.O. Box 43640, Nairobi, Kenya.

In the manuscript written by Uphill, Jacob and Lall there are several contradictions. At one time it is stated that, "The production of vitamin B12 deficiency in animals is known to be difficult (Stokstad 1968) and in this laboratory the feeding of a vitamin B12-deficient diet to baboons over a two-year period resulted in the development of a *subclinical* deficiency of the vitamin (Siddons 1974)." Then they tell us how they produced the "subclinical" deficiency. "It was shown however, that the vitamin B12 deficiency was more severe in baboons fed a diet containing ampicillin, suggesting that the intestinal flora may play a part in the vitamin B12 nutrition of the baboon." They never really found a deficiency in all the animals. Some animals actually had a high serum vitamin B12 level. Some writers taking the foregoing statement out of context will convince people that a vitamin B12 deficiency can indeed be produced in baboons, when it can't. The so-called deficiency was subclinical and never caused disease in the animals. It was merely a low serum vitamin B12 level. Even if they had produced a real deficiency it would not have meant anything because the experimental diet was so inadequate in every known nutrient, containing only synthetic vitamins and minerals, that for all purposes the animals were just subsisting, and probably living largely on stored nutrients.

They continue: "In addition, a group of young baboons fed a vitamin B12-deficient diet were found to have high serum and liver vitamin B12 levels after 18 months, in comparison with older animals fed the same diet. The intestinal flora of young animals has been shown for many species to be different from that of adult animals (Smith & Crab 1961). This study was undertaken to determine whether there were any detectable differences in vitamin B12 production by the intestinal flora of the baboons which could explain these findings."

They also state that, "Samples of gastric and small intestinal contents, obtained at laparotomy from two young vitamin B12-deprived baboons, contained varying quantities of vitamin B12. Many of the organisms isolated from these aspirates produced vitamin B12 in vitro. The highest levels of vitamin B12 were produced by anaerobic organisms."

The experimental animals were fed a diet completely free of all nutrients except synthetic ones. It is a wonder that any of the baboons remained healthy. The basal synthetic diet consisted of vitamin free casein, sucrose, corn oil and a mineral salts mixture, together with a vitamin mixture. Some were given a diet deficient in vitamin B12 and some were supplemented with vitamin B12. If you are interested in the exact diets of all the animals, I suggest that you secure a reprint of the article. The feeding of the animals and separation into control groups were extremely varied and would take up too much valuable space to reprint it all here. Some had the basal diet supplemented with vitamin B12; others had a vitamin B12 deficient basal diet; and some had the basal diet but low in fat and containing sodium propionate; and some had ampicillin added to the vitamin B12 deficient diet. Both sodium propionate (a preservative

used in baking goods) and ampicillin probably had detrimental effects on the microbial flora of the baboons' intestinal tracts.

"Many intestinal microorganisms are known to produce vitamin B12, often in an amount in excess of the host's requirements (Mickelsen 1956). However, the site of vitamin B12 production in the intestine is important when considering the potential availability of the vitamin to the host, since vitamin B12 absorption is reported to occur in the upper part of the alimentary tract (Matthews 1967). Ruminants, although feeding on a diet of plant material totally devoid of vitamin B12, have been shown to have high levels of the vitamin in their rumen contents (Hungate 1966). Due to the anterior position of the rumen, its content must pass through the remainder of the alimentary tract, so allowing maximal opportunity for vitamin absorption. In other mammalian species and in birds the densest intestinal microbial populations normally occur in the caecum and colon. Vitamin til2 produced by microbial action in these areas is considered to be excreted, unutilized, in the faeces. Coprophagous species are an exception in that they obtain a considerable part of their vitamin requirements by ingestion of their faeces."

In the article quoted above, the authors skirt all around the truth, never quite willing to admit that baboons also have bacteria in the upper intestines that form vitamin B12. In the aforementioned experiment it was clearly demonstrated that baboons have the microbial flora in their stomachs and small intestines that produce vitamin B12. Even though they demonstrated that the baboons fed on a diet deficient in vitamin B12 nevertheless have vitamin B12 in their serum, they seem reluctant to admit that this can happen. They succeed in producing a near deficiency of B12 by feeding some of the animals 50 mg/kg of ampicillin a day (an antibiotic). Naturally this will destroy some of the bacteria and prevent vitamin B12 from being formed. Since all the B vitamins are interrelated, and since some are necessary for the absorption of others it is understandable how some older animals may be deficient, being on such a synthetic diet.

It was clearly shown that microorganisms capable of producing vitamin B12 were isolated from the gastrointestinal tracts of the animals who were deprived of vitamin B12. "A greater variety of organisms was isolated from baboon A. However, baboon B had eaten very little of the food offered to it 6 h prior to laparotomy."

An interesting point observed was that yeasts were not the organisms that formed the most vitamin B12 in the baboons. "The levels of vitamin B12 produced by organisms isolated from baboon faeces are compared. A total of 126 strains of yeasts and aerobic organisms were isolated of which only 9.5% produced up to 1.0 ng/ml, vitamin B12. In contrast, of 123 strains of anaerobic organisms isolated, 48% of cultures contained > 1.0 ng/ml vitamin B12, and 23.6% of cultures, mainly Gram negative rods, contained >10 ng/ml. There were no noticeable differences in the types of faecal organisms isolated from controls or baboons fed any of the vitamin B12 deficient diets, with the exception of the group fed ampicillin. The faeces of these animals contained very few aerobic or anaerobic Gram positive organisms, the flora consisting mainly of aerobic and anaerobic Gram negative rods and yeasts. The patterns of vitamin B12 production by the faecal organisms were similar both within the vitamin B12-deficient groups, and between the vitamin-deficient and control groups."

Vitamin-Deprived Baboons Had More Bacteria Working For Them

The group of baboons fed a vitamin B12 deficient diet showed that more bacteria capable of forming vitamin B12 were in their gastric juice samples. "Table 4 compares the vitamin B12 produced in cultures of organisms isolated from gastric juice samples aspirated 6 h after feeding, from vitamin B12-deprived and control baboons. The number of isolates obtained from the gastric juice samples from the control group was low in comparison with the vitamin deprived group. There were also fewer isolates producing the higher levels of vitamin B12 obtained from the control baboon gastric samples. No organisms producing > 10 ng/ml vitamin B12 were isolated from the gastric juice samples." This definitely proves that bacteria capable of producing at least 10 ng/ml of vitamin B12 are in the babcon's stomach and, therefore, there is. definitely a chance for absorption of vitamin B12 as the stomach contents move to the

small intestine.

Humans Have Anaerobic Organisms Producing Vitamins In The Colon

It is very possible that the bacterial flora of humans also produces vitamins for us in the stomach and small intestine where they can be absorbed, and not only in the colon. For several years now, I have held to this view, because it is well known that the ileum, that part of the small intestine nearest the colon, has a purpose. It begins to take on the anatomy of the colon. Less digestion and absorption of other nutrients occurs here. Recently it has been shown by experiments that this area is the greatest area of absorption of vitamin B12. Bacteria that produce the most vitamin B12 are those which grow in the absence of air, anaerobes, and these are present in the stomach and small intestine.

It is well known that anaerobic bacteria exists in the human digestive tract just as they exist in the baboon digestive tract. Vegans not taking supplements, who were part of an experiment, had no deficiency of vitamin B12. If it was not in their food as some scientists claim, then it had to be formed by the host's microbial flora. "The highest levels of vitamin B12 were produced by the anaerobic isolates, in particular by Cl perfringens and some of the anaerobic Gram negative rods."

There Is No Way Getting Around It—Vitamin B12 Is Produced In The Stomach And Upper Intestine Of Primates

Baboons have bacteria in their stomachs and intestines which produce vitamin B12. They are primates. So is humankind a primate.

This implies that people also have the bacterial flora to produce vitamin B12 and that this can be absorbed in the ileum.

There are anaerobic bacteria in human gingiva. Were they to make more studies on these bacteria, I'm sure they would find that they also produce vitamin B12. It is essential that we understand that the vitamin levels that the bacteria produced differed when the food they were fed was different. If these bacteria are fed properly in our own intestines I am sure that the levels of B12 would increase. If we humans live on the diet to which we are constitutionally adapted, not only will we be properly nourished, so will our bacterial flora, and they in turn will produce for us the necessary elements for a proper nutrition in levels far more than we actually need.

Vitamin B12 Is Reused Like Iron

Vitamin B12 circulates. It is excreted with bile and reabsorbed like bile from the intestines. It can be used over and over again. It is stored in the liver. Our body is intelligent. It knows what it is doing.

The ileum has its purpose, even if we mortals can't figure it out. Probably other even unknown nutrients are also formed for us in the intestines by bacteria. If we would quit feeding ourselves poisons, and eat a diet for which we are anatomically, physiologically and biochemically designed we would see a health unparalleled in modern times. Our health could equal that or surpass that of the animals in the wild if we would cultivate it half as much as we cultivate enervating habits.

"It has been shown that vitamin B12 was present in the stomach and upper intestine of two of the young vitamin B12 deprived baboons. In addition some of the microorganisms isolated from the gastrointestinal contents of these baboons were capable of producing in vitro large quantities of vitamin B12. However, gastric juice samples from all the vitamin deprived and control baboons contained organisms capable of producing vitamin B12 *in vitro*. No differences were detected due to different diets or age of animal, with the exception of the baboons receiving ampicillin. Therefore, the unusually high serum and liver vitamin B12 levels found in the young animals, but not in older baboons, remains unexplainable."

I guess the researchers must be very careful about not assuming anything, this is why they are very careful in not stating that vitamin B12 is actually produced *in vivo* in the animals deprived of vitamin B12. But, organisms don't cease functioning when they find themselves in the intestinal tracts of animals. To cease functioning would be to die and they were found alive very capable of producing vitamin B12.

The Study Provides Presumptive Evidence That The Vitamin B12 Found In The Baboon Stomach And Upper Intestine Could Have Been Produced By Microbial Action

After beating about the bushes for about a half hour, they finally come up with the above presumption.

"Vitamin B12 found in the gastrointestinal contents of vitamin B12 deprived baboons could be derived from ingested food, desquamated epithelial cells, digestive secretions or from the bodies and/or the secretions of the gastrointestinal microflora. Siddons (1974) reported that the vitamin-free casein used in these studies contained 0.004 ug/gr L. leichmanni growth-promoting ability, which, if it was due to vitamin B12 could result in each baboon receiving 0.01 ug vitamin B12 a day. The three baboons fed the soya protein diet did not receive even this minimal supplementation however, but the mean 18 H and 6 h fasting gastric samples also contained high levels of the vitamin. The vitamin B12 content of desquamated epithelial cells or digestive secretions is unlikely to account for all of the vitamin B12 found in the stomach contents of baboons deprived of the vitamin. These animals were showing evidence of vitamin B12 deprivation in their low serum and liver levels (Siddons 1974) but the mean vitamin B12 levels in their stomach contents 18 H after feeding were not significantly lower than those of control baboons. It would be impossible to state conclusively that the intestinal flora were largely responsible for the vitamin B12 found in the baboons stomach and intestine, since production of the vitamin by an organism in vitro does not necessarily mean that comparable levels would be produced *in vivo*. However, this study does provide presumptive evidence that the vitamin B12 found in the baboon stomach and upper intestine could have been produced by microbial action."

Vegans also had lower serum levels of vitamin B12 but their high folate count made up for this and their blood cells were normal. Normal values for serum vitamin B12 for vegetarians and frugivores have not yet been established. If no disease develops and the animals and people remain healthy then evidently their supply of vitamin B12 is adequate.

They finally get around to making a few conclusions. "Assuming that the vitamin B12 produced by these organims *in vitro* was also being produced *in vivo* in the baboon stomach and upper intestine, it is possible that the vitamin was being absorbed and utilized to meet part of the animal's nutritional requirements. Vitamin B12 produced by the Gram positive flora was unavailable to the baboons fed ampicillin and their vitamin B12 deficiency was increased."

They Can't Really Produce A Deficiency Of B12

That they can't really produce a vitamin B12 deficiency in baboons is clearly intimated in the following sentence. "This study suggests that the chances of producing a vitamin B12 deficiency in the baboon might be improved by a change in its feeding habits." By operating on animals and cutting out normal body parts they can achieve their goal. "Smith (1956), showed that in fowls with ablated crops, the bacterial content of the alimentary tract was lower than in ordinary fowls." Surgeons do the same in people. By cutting out over half of some of their patient's stomachs, it's very easy to produce a vitamin B-12 deficiency. There's very little glandular tissue left to secrete digestive juices. To produce a deficiency of vitamin B-12 in baboons, the following is proposed: "Closure of the baboon facial pouches might also lead to a reduced intestinal bacterial population. In addition, the baboons used in this study were fed their daily ration in two meals with an interval of 5 hours between. The results show that vitamin B-12-producing organisms would therefore be present in the upper intestine for at least 12 out of

every 24th. The feeding of only one large meal/day and a change of diet to a type less likely to cause an increase in the putrefactive and potentially vitamin B-12 producing flora could speed the development of vitamin B-12 deficiency in the baboon. Alternatively the gram positive vitamin B-12 producing flora can be eliminated by the daily feeding of small quantities of ampicillin."

There is just no way to completely rid the digestive tract of animals and people of all its bacterial flora except by drugging the animal or person so much that you kill it, him or her. There were a total of 126 strains of yeasts and aerobic organisms that produced even more vitamin B-12. These were not only found in the colon. These were found in the stomach and small intestine of all the animals, those deprived of vitamin B-12 as well as the controls. Organisms producing vitamin B-12 found in the gastrointestinal aspirates of two young vitamin B-12 deprived baboons were yeasts, aerobic gram positive cocci, anaerobic gram negative cocci, micro-aerophilic gram positive rods, clostridium perfringens, other anaerobic gram positive rods (unidentified), aerobic gram negative rods, and anaerobic gram negative rods.

I hold the view that if these organisms produce in vitro vitamin B-12, they will do so even more readily in vivo because that is where they live and grow. It is their natural habitat and it is one of their metabolic functions to produce vitamin B-12.

Humans being primates, also have these same bacteria. They do the same things for us as for the baboons. Are we going to let ourselves be hoodwinked into eating practices that are not ideal just because of unproven propaganda? I venture to say that if a percentage of those with pernicious anemia were studied, that there would be more cases found among omnivorous people than vegetarians and on the whole the vegetarians would be the healthiest specimens.

Article #19: Well! You Wanted to Know! by V.V. Vetrano, B.S., D.C

What is vitamin B-12?

Vitamin B-12 is known as the anti-pernicious anemia factor. It is also called the *extrinsic factor* of Castle. It was first isolated in 1948 from liver as a red crystalline compound which contains cobalt and phosphorus. It is a water soluble vitamin and functions as a coenzyme in metabolism.

It is called cobalamin because it contains cobalt. The central structure, which contains cobalt, is referred to as a "corrin" ring system. One type of cobalamin contains cyanide, but in the latest edition of *The Review of Physiological Chemistry*, (p. 180) by Harper, Rodwell, Mayes and Lange, they say that the "cyanide group as a component of vitamin B-12 is an artifact introduced in the procedure used to isolate the crystalline compound from natural sources. It (cyanide) does not occur in the vitamin molecule as it exists in natural materials."

Cyanide is very toxic and the addition of cyanide to a vitamin does not seem to me to be desirable. It is known that this particular form of the vitamin is eliminated more rapidly than other forms and is not as effective as the other cobalamins, such as hydroxocobalamin. Some scientists think cyanocobalamin should be withdrawn from the market because it is not as effective as other cobalamins. ("Why Has Cobalamin Not Been Withdrawn," Freeman, A. G., *et al*, Lancet 1 (8067) p. 777-8, Apr. 1978). This simply stresses the view that Dr. Shelton and I have held for many years. We have always said that the mere extraction of vitamins from natural foods changes their character and renders them unfit for use, in

as much as they are no longer combined with natural substances as they were in the natural food and are therefore digested and metabolized differently. The extraction of cobalamin from natural sources actually adds a toxic substance, cyanide, to the structure.

By reacting cyanocobalamin with other substances, it can be made into other derivatives of cobalamin. "Substitution of the cyanide group with a hydroxy group forms 'hydroxocobalamin'; with a nitro group, 'nitrocobalamin'; and with a methyl group, 'methylcobalamin'. The biologic action of these derivatives appears to be similar to that of cobalamin, although hydroxocobalamin (B-12A) is more active in enzyme systems requiring B-12 in experimental studies in vitro. Furthermore, although hydroxocobalamin given orally in large doses is absorbed as well as cyanocobalamin in similar doses, hydroxocobalamin is retained longer in the body; this suggests that hydroxocobalamin may be more useful for therapeutic administration of vitamin B-12 by mouth." The fact that it is eliminated more slowly than cyanocobalamin from the body could mean two things; either that it is hard to eliminate or that cyanocobalamin is more toxic. Synthetic substances do not function in metabolism exactly like the natural substance. Synthetic vitamins may be used as substitutions and fool people temporarily by masking symptoms, but they never metabolize or function exactly like the natural substance and *taking the so-called "natural" vitamins never produces health*.

The B-12 coenzymes, called cobamides, have been isolated not only from "several bacterial cultures but also from the liver of various animals (mainly dimethylbenzimidazole cobamide). The best source is a culture of Propionibacterium shermanii (ATCC 9614). The coenzymes are inactivated and converted to the vitamin form by visible light or by cyanide ion, the adenine nucleoside being removed or replaced by the cyano group. The methods originally used to extract the vitamin included heating in weak acid, addition of cyanide ion, and exposure to light. As a result it is likely that the coenzymes were converted to the vitamin and thus overlooked." (page 181, *Review of Physiological Chemistry.*) This brings to my minds a question. Perhaps they are not finding vitamin B12 in fruits and *vegetables* because it is in the coenzyme form or in another form or perhaps they are destroying it by their methods of finding it. The following quote brings out the fact that all the B vitamins are found together in nature.

The Nutrition Almanac, on page 18, warns that, "The most important thing to remember is that all the B vitamins should be taken together. They are so interrelated in function that large doses of any of them may be therapeutically valueless or may cause a deficiency of others. For example, if extra B6 is taken in 50-milligram potencies, it is important that a complete B complex accompany it. In nature, we find the B-complex vitamins in yeast, green vegetables, etc., but nowhere do we find a single B vitamin isolated from the rest. Natural forms of the B vitamins are preferable to the synthetic forms since the natural forms have all of the B factors, even those not yet known, plus valuable enzymes. Most preparations of single B vitamins are synthetic or, at least, no longer in their natural form. These synthetic B vitamins are used primarily to overcome severe deficiencies or serious physical conditions in which rapid results are needed. When taking supplements, it is very important to remember that the B vitamins exert many different effects upon each other; therefore, *excesses and insufficiencies may be harmful*."

We heartily agree with *The Nutrition Almanac*. All our nutrients should be secured through natural sources as they all function together and have a relation one to the other, and only by eating natural foods can we get our nutrients in the proper proportions one to the other.

How Stable is Vitamin B12?

Vitamin B12 can be heated at 100 degrees centigrade for long periods under certain conditions. If vitamin B12 is placed in an acid solution in a pH ranging from 4 to 7, that is, in a solution acid up to neutral, it can be autoclaved (steam heat under pressure) with very little destruction of the vitamin. "However, destruction is rapid when the vitamin is heated at pH 9.0 or above." A pH of 9 is very alkaline. Since vegetables are alkaline, this may mean that what little vitamin B12 is contained in vegetables is rapidly destroyed while cooking. This may be why researchers are unable to find this

elusive vitamin in vegetables because they destroy it with heat in trying to extract it.

What does vitamin B12 do in the body?

Vitamin B12 acts as a coenzyme in metabolism. Only three cobalamins have been isolated from mammalian tissues; and of these only two forms of vitamin B12 are known to act as specific coenzymes in mammalian systems. "The two reactions in mammalian systems that are shown to be vitamin B12 dependent are (1) the conversion of methyl-malonyl-Co A to succinyl-Co A; and (2) the methylation of homocysteine to methioninc, which also involves folate coenzymes." A disease involving these conversions in metabolism is becoming more prevalent in modern times.

We must remember that vitamin B12 is an essential nutrient for all the cells of the body. It is necessary for the growth of all cells. Vitamin B12 with folic acid derivatives, are also necessary for DNA synthesis, and there are few who have not read of the importance of DNA to the body. When there is a complete lack of vitamin B12, cells can no longer divide, because their nucleus cannot mature. Without vitamin B12 the red blood cells cannot proliferate normally. They are malformed and they die more rapidly than normal cells.

Vitamins B12 is necessary for catalyzing the conversion of methylmalonyl-Co A to succinyl-Co A. Without these chemical transformations many serious symptoms develop.

A deficiency of vitamin B12 in humans causes the development of macrocytic anemia, and/or lesions of the nervous system. Sometimes both occur together. Sometimes the neurologic symptoms supervene without the development of anemia. Structural changes of the red blood cells are very reliable indicators of vitamin B12 deficiency. In this case blood tests may be valuable to determine whether or not you are properly absorbing vitamin B12. "In general, it may be concluded that when the intake of vitamin B12 is low, the demand for this vitamin in hemopoiesis exceeds that for any other clinically recognizable physiologic function. Macrocytosis is, therefore, a sensitive indicator of vitamin B12 deficiency." (page 183, *Review of Physiologic Chemistry*)

How do we absorb vitamin B12?

It has been well established that vitamin B12 is absorbed from the ileum. But its absorption is dependent on a factor called the Intrinsic Factor (IF), first named by Castle. It is present in normal gastric juice. It is secreted by the parietal cells of the gastric glands and is found in the cardia and fundus of the stomach but not in the pylorus: that is, it is found in the upper part of the stomach.

The free vitamin (cobalamin) becomes bound to the intrinsic factor, which is thought to be a glycoprotein. The combination of vitamin B12 with the intrinsic factor results in the formation of a complex substance that resists intestinal digestion.

In foods, vitamin B12 comes combined with proteins, or the protein break-down byproducts, such as peptides. These must be split off by the processes of digestion before absorption can take place. The members of the vitamin B12 group are very large molecules and this is considered the reason it is necessary for them to be combined with intrinsic factor for absorption. The body must actively absorb the vitamin and the cobamides with the consequent expense of energy. They cannot be absorbed by mere diffusion across the intestinal mucous membrane, unless administered in huge doses.

"They are not lipid-soluble and, according to Wilson (1964), the molecules are too large to enter the hypothetical water-filled pores in the lipid membranes of the absorptive cells, so that any absorption by simple diffusion would appear to be precluded."

Experiments conclude that, under physiological conditions, humans can absorb only about 2 ug/day of vitamin B12. Only after the vitamin is combined with intrinsic factor, can it cross the intestinal barrier. If high doses of the pure vitamin are given, however, some can diffuse through the intestinal mucous membrane because of discontinuities. A discontinuity is a sign of a damaged mucous membrane. In

health all the membranes of the intestinal tract will be intact.

The intrinsic factor is a glycoprotein secreted by the parietal cells of the gastric mucosa and is necessary for the absorption of vitamin B12. The first stage of absorption is good digestion. The vitamin must be separated from the materials to which it is bound before it can be combined with the intrinsic factor. In food, B12 compounds are largely protein or peptide-bound and these must be separated from the vitamin by digestive juices before B12 can be combined with the intrinsic factor. Only after separation from the protein, to which it is bound, can the B12 compounds combine with the intrinsic factor. The third stage of absorption is to transport the vitamin B12 into the cells of gastrointestinal mucous membrane.

After vitamin B12 has combined with intrinsic factor it is in a complex form that fortunately resists further intestinal digestion. For normal absorption the pH must be neutral and calcium ions must be present. The vitamin has two receptor sites for absorption and one of them combines with intrinsic factor and the other with the ileal intestinal microvilli. The microvilli readily become saturated and this limits the absorption of vitamin B12 to about 1.5 ug after any one dose of the vitamin. The current thought is that the intrinsic factor is released by a "releasing enzyme" within the intestine, so that the vitamin can pass into the mucosal cell.

Absorption is limited and the maximal absorptive capacity in humans under normal conditions, is about 2.ug/day. Most sources state that humans require only 1 ug/day.

The vitamin, when given in large concentrations is thought to get into the body by passive absorption, but researchers attribute this to discontinuities of the lining of the intestines. About one percent of very large doses of vitamin B12, such as 3000 ug is absorbed passively. The intrinsic factor appears to be necessary for absorption of very small amounts, such as are found in food.

Where is vitamin B12 absorbed; Can it be absorbed from the stomach or colon?

Vitamin B12 is absorbed mainly through the ileum, although there is only evidence that some absorption might also occur in the upper small intestine. Even though research physiologists transpose ileal tissue to other areas of the intestine, it still maintains its superior capacity to absorb vitamin B12. This supports my view held all along before reading this material; i.e. that the ileum had a function and since the colon couldn't absorb vitamin B12, it was probably done in the ileum. It has long been known that bacteria produce vitamin B12 in the colon. If bacteria can do this in the colon why should they not also do so in the ileum, where the absorptive mechanisms are still in operation?

Why are some people deficient in vitamin B12?

There are many reasons why vitamin B12 may be lacking. Most of them center around failure of absorption and not because the vitamins are lacking in the diet. Articles dealing with the pathology of absorption of vitamin B12 classify defects of vitamin B12 absorption into two main groups: (1) "those due to defective gastric secretion (i.e. lack of IF) and (2) those due to defective intestinal absorption."

Naturally if most of the stomach has been excised by surgery there will be little intrinsic factor secreted and consequently little vitamin B12 absorption. "After partial gastrectomy, some IF-secreting mucosa usually remains, and severe impairment of vitamin B12 absorption does not usually occur unless the mucosa of the gastric remnant undergoes atrophy."

Gastric atrophy accounts for malabsorption of many vitamins. Atrophy occurs after many years of irritation to the stomach mucosa by wrong ways of living and especially from wrong ways of eating. The stomach is the most abused organ of the entire body. When each year we pour in chocolate, coffee, tea, alcohol, hot peppers, chemicals, mustard, salt, aspirin, garlic, onions, drugs and other irritants by the tons how can we expect our digestive tracts to remain normal? When we eat all sorts of poor food combinations, so that instead of digestion we get indigestion, how can we expect any nutrients to be left for us? Bacteria use them. The stomach and intestines naturally become irritated and inflamed from all

the decomposition products of bacterial decay.

Put some salt or any one of the above condiments into an open wound and you will readily understand the word irritant. Then when on top of all the above irritants we combine our foods so poorly that instead of digestion we get indigestion and its concommitant poisonous and irritating end products, we have double trouble. Gastric irritation goes from irritation, to greater irritation and finally inflammation, (gastritis or duodenitis, or gastroenteritis, or ileitis, or colitis or all at once.) When these conditions are severe, atrophy is only one consequence. Cancer is another. Ulcers are still another. After many long years of irritation and chronic inflammation, normal functioning cells of the digestive glands die, then digestion is naturally impaired. Not only will the stomach not secrete the intrinsic factor, if it indeed exists, but it will not digest the protein off the vitamin B12 to permit it to be combined with IF for absorption.

Juvenile pernicious anemia is a rare condition. The secretion of intrinsic factor is congenitally absent, but the other secretory functions of the stomach are usually normal. This is just another example of the fact that as a race, we are deteriorating. Recently I've read articles intimating that formerly humans were able to manufacture their own vitamin C. If this is true, then you can see how far the deterioration has gone. A missing enzyme here and there can make a world of difference when it comes to health and life. However, most of the pernicious anemia of childhood is acquired. In these cases it is noted that there is gastric mucosal damage. This again points to the fact that enervation, by wrong living habits, and especially poor care and feeding of children, causes toxemia with the development of diseases that impair the function of the gastrointestinal tract.

There are many reasons why vitamin B12 is not absorbed from the intestines; there are as many reasons as there are enzymes and catalytic reactions. Such diseases as idiopathic steatorrhea, coeliac disease, tropical sprue, and lesions of the small-intestinal wall, such as regional enteritis and intestinal tuberculosis, and intestinal resections—particularly when the ileum is involved, are reason enough for mal-absorption of all nutrients, not just vitamin B12. Other anatomical abnormalities such as small-intestinal diverticula, enteroanastomoses and blind loops of small intestine (blind-loop syndrome) also cause failure of absorption of vitamin B12. Experimental evidence leads researchers to believe that in some cases, especially when surgical blind loops are left in the abdomen and in cases of diverticulosis, where there are stagnating feces, that more bacteria thrive and these use up the vitamin B12 of the host. They also produce toxic factors, which interfere with the absorption of vitamin B12. Bacteria also deconjugate bile salts and impair mucosal function through the toxic effects of free bile acids. Recently cases have been reported of transport defects of vitamin B12 in children and young people. It is familial and associated with proteinuria. "It is quite distinct from juvenile pernicious anemia." People who are infested with fish tapeworm also develop anemia. One reason is that the worm takes up vitamin B12 itself and produces a factor which splits vitamin B12 from intrinsic factor and then finally gastric atrophy develops from the lack of vitamin B12 itself.

Vitamin B12 and folic acid are very important to rapidly dividing cells such as those of the bone marrow and even those cells lining the gastrointestinal tract. They need vitamin B12 for multiplying rapidly, as they are supposed to. Vitamin B12 is also necessary for the absorption of other nutrients from the intestines. A lack of B12 depresses the function of the gastric mucosa. Some cases are attributed "to the production of a *defective intrinsic factor* or *intrinsic factor: B12 complex* as well as to a defective ileal receptor for *intrinsic factor: B12 complex*. "

In short, most cases of pernicious anemia or a low level of vitamin B12 arise out of impaired function somewhere along the gastrointestinal tract and not because there is a lack of vitamin B12 in the diet, even in Vegans:

This brings us back to basic *Hygiene*. Remove the causes of disease and the body will heal itself. In these cases of impaired function, fasting, rest, exercise, and sunshine will restore the body's ability to absorb vitamin B12 in all except those who have had their stomachs and intestines surgically excised or impaired by surgical blind loops, and those who were born not secreting the intrinsic factor or with a

defect in metabolism of B12, such as those born with Methylmalonic Aciduria. Even in those cases where gastric or intestinal atrophy plays a part, the improved digestive capacity after fasting, with proper combinations of food, so that there won't be so much decomposition of foods in the intestinal tract will improve absorption. Better food combinations means fewer of the types of bacteria that use vitamin B12 can exist so that the bacteria that do produce vitamin B12 can do their job properly. Less decomposition in the intestinal tract will promote the proper bacterial flora that make vitamin B12 instead of using it.

There are so many intricacies of digestion and absorption that are still unknown, that can go wrong when we are in ill health, that the only way to insure proper digestion and absorption is to maintain good health. No matter which way you look at it, it comes back td the same basic principles of right living. If you live *Hygienically*, eat uncooked natural foods—fruits, vegetables, nuts, and seeds—and secure all the other requisites of physiology then your body will function normally for you and it will absorb all the vitamin B12 necessary for health. *Hygiene* does not need to be changed. We've got to realize where the real fault lies and eliminate it. Dosing our people with vitamin B12 instead of removing causes is the same as giving drugs. If we start this, it won't be long before we are among the poisoning profession. All it takes is that first blind compromise.

Case History: How We Suddenly Became Vegetarians by Arthur S. Harris, Jr.

(A didactic word on vegetarianism)

For forty-nine years I ate meat the way most Americans do—without questioning the practice from any point of view—health, aesthetics, ecology. You might say I had been indoctrinated into meat-eating by society. But four years ago at the age of fifty I gave up meat completely; my wife followed the next month and one of our sons a year later.

A six month's trip to Mexico changed everything. On a tight budget, we drove down to Oaxaca and then to Puerto Angel living as inexpensively as we could. In Puerto Angel, we rented an adobe house for $16 a month and lived surrounded by Mexicans who slaughtered animals in the early dawn. Agonizing cries of animals in their last moments of life would pierce the predawn darkness. Then, not thirty yards from our hammocks, meat would be cut up. Suddenly we were confronted with the fact that meat comes from a corpse. In our naivete we had allowed ourselves to think meat came attractively wrapped from the A&P meat counter. Going to the nearby dusty town of Pochutla didn't help. Here chunks of meat hung on hooks in open air stores with flies buzzing around.

We had been jolted out of our innocence. We stopped eating meat and made do with fantastically inexpensive vegetables and fruits, supplemented by dairy products.

Back in more civilized Oaxaca, we ate one or two American-style hamburgers but found them hard to get down. Visions of an animal being killed with a machete to the throat kept interfering.

Now, into Oaxaca flow a steady stream of young, knap-sacked Americans who sip capuccino on the zocolo and talk of cosmic consciousness, Mexican police, Vedic studies, and the Allman brothers. We picked up with a young couple into nutrition and spent days learning from them. They were, of course, vegetarians, but they expanded our awareness beyond health to point out that meat-eating consumed vast amounts of protein in a world with a protein shortage. They made us realize that an animal is a protein factory in reverse, consuming tons of protein-rich grains and soybeans to produce mere pounds of chemically-injected animal protein. By the time we left Mexico to return to New York, we were no longer meat eaters. Within a year we gave up fish and chicken, then Phyllis gave up eggs. Technically, I suppose we can be catalogued as lacto-vegetarians.

We are astonished when people ask us if we don't feel weaker. They ask how we possibly get enough protein without good, red meat. When we tell our questioners that we feel better, cleaner, healthier and stronger than ever, we get those glazed-eye looks which say, "Veggies are brainwashed nuts!" But we know better and we know who the brainwashed really are—American meat-eaters who've never once questioned the practice of eating animal flesh as the mainstay of their diet.

Dark Humor: Rigor Mortis on the Dinner Plate by Coleman McCarthy Washington Post

WASHINGTON—Thanksgiving, America's day of tribute to carnivorism, isn't likely to have the same turkey-chomping merriment of years past. Marian Burros, the journalist-cook-dashing spirit who favors simplicity in her kitchen and factualness in her prose, has seen to that. She talked turkey the other day in the New York Times.

Birds served by Grandma, said Burros, are all but a vanished species. Most of today's turkeys "have been frozen and filled with ingredients no self-respecting turkey should contain...Much of the flavor has been bred out of turkeys, so whether they are fresh makes little difference."

For the fresh-is-better dreamers, Burros, whose current best-selling cookbook is *Keep It Simple*, salted her story with a Final complication: "If the turkey is freshly killed do not try to serve it the same day, for you will end up with one stiff bird, rigor mortis having set in; give a freshly killed bird two days to relax."

When food writers begin sounding like morticians, a major advance for vegetarianism has been made. A circle is being closed. Marian Burros discussing the rigor mortis of Thanksgiving turkeys is not much different from George Bernard Shaw's discourse on "animal corpses" as he beheld the meat-filled plates of his dinner companions.

It isn't known whether this style of Shavian frankness helped cure England's cadaver consumers of their ghastly habit. It may even have had the opposite effect: the harder Shaw was to swallow, the more his dinner mates sprinkled meat tenderizer on their steaks.

But this is different from the frankness currently found in the food pages of U.S. newspapers. The skepticism of a Marian Burros is likely to turn citizens into nutritional vegetarians, as against the creation of ethical vegetarians, which was the goal of Shaw. To skip the turkey and go straight to the yams and peas is an attempt to dechemicalize one's body.

That turkeys and other meats have become so tasteless indicates that effectiveness of food technologists. In an earlier time, the birds, pigs and cattle that ended up on America's tables were tasty because they were vegetarians themselves. But now the animals are forced to ingest chemicals: to grow fatter faster.

To become a nutritional vegetarian is to seek an escape from the food technologists who attack the animals. The attacks, it is discovered, are really on us. A turn to healthy food is a turn away from death food.

The ethical and nutritional vegetarian is now being joined at the table by the economic vegetarian. Ewen Wilson, director of economics at the American Meat Institute, talks about "income elasticity": the more money a person makes, the more likely he'll eat meat. The less money, the less meat. "The demand for meat has been slow this year," Wilson says, "because of the economy. With a lot of people out of work,

families cut back on meat."

This is another circle making a full turn. Historically, man was a grain and berry eater. He moved against certain animals out of necessity. Plutarch writes in *The Eating of Meat*: "For my part I wonder what was the disposition, idea, or motive of the first man who put to his mouth a thing slaughtered and touched with his lips the flesh of a dead animal...Actually, the reasons those primitive people first started the eating of flesh was probably their utter poverty."

Today, with economic vegetarians increasing in number, the challenge for these involuntary abstainers is to resist the feeling of deprivation. We have been conditioned by the false message that vegetarians are weaklings and flakos, while the eaters of red meat—and, on Thanksgiving, white meat—are the real articles. Real, perhaps, but not so healthy.

The conditioning is wearing thin, especially since the meat industry has few defenders once the propagandists are removed. As Mark Braunstein, in *Radical Vegetarianism*, a new and remarkably intelligent book, asks: "What philosopher has written a convincing text for the cause of carnivorism? What poet has lamented the misunderstood lives of the butcher and executioner?"

None. Which is why the food writers are feeling less and less restrained in discussing rigor mortis on the dinner plate.